PACKAGE engineering

How to run "job shop" packaging

Working with engineers and cutting across departments show there is more to supervision than simply guiding the crews in their daily work—Page 61

Fast way to pre-test coatings

Want an easy way to predict poly-coated paper's oil and grease resistance? Add the right dye to test materials before sealing your test pouches—Page 66

Bi-level line saves floor space

Crowded work areas left no room to install new machinery. Splitting a packaging line between two floors made its mechanization effective—Page 70

New products, literature–Page 108

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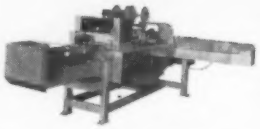
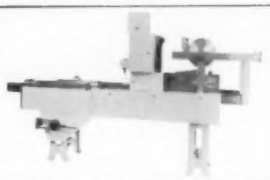
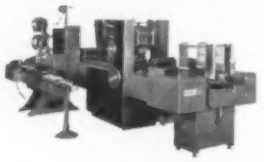
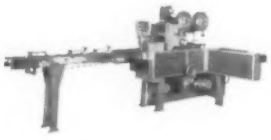
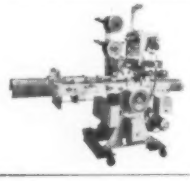
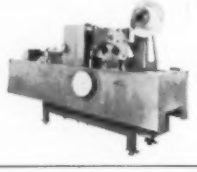
NOVEMBER 1961

VOLUME 6 • NUMBER 11

...wrapping, bundling, cartoning & banding machines from SCANDIA

SERIES 100		**Medium-priced fully automatic wrapping machines for single packages, multiples and bundle-wraps.**	Surprisingly fast models in this newly designed Series for wrapping, multiple wrapping and bundling operate in the speed ranges of machines costing much more. Feature Scandia's three-sides method of folding and sealing the packaging material with or without opening-tape. Produce a strong wrap for bundles and permit varying collations for best display and easy shelf stacking. Especially adaptable for supermarket multiple and Holiday wraps.
SERIES 300		**"Tray Topper" hooding and crimping machines for applying foil covers to frozen dinner trays.**	Three basic models in Scandia Model 300 Series apply foil tops to frozen dinner trays in continuous one-level motion at speeds up to 120 trays per minute. Engineered to meet rigid food industry specifications.
SERIES 400		**Fully automatic cartoning machines.**	Model 400 Series, the latest packaging machinery development of Scandia's engineering department, introduces a new concept to the field of cartoning: the forming of a carton blank around the product automatically. Designed for cigar pocket-packs initially, other models are now available for cartoning cigarette packages and multiples of other products.
SERIES 500		**Low-priced wrapping machines for single packages, multiples and bundle-wraps.**	Model 500 Series wrapping machines are three-quarters automatic in operation and are ideal for lower volume production, or for use while developing new packages and packaging techniques. Machines in this series are the backbone of Scandia's Rental Program.
SERIES 600		**Adjustable high-speed fully automatic wrapping machines for single and multiple packages.**	There are six Models in this "work horse" Series to choose from for overwrapping the full range of package sizes—from razor blade tucks to cigar 5-packs to cake mixes and frozen foods.
SERIES 700		**High-speed turret-type wrapping machines.**	Especially designed to meet rigorous specifications of the cigarette industry, more than 1,000 of these machines are now in round-the-clock service throughout the world turning out universally recognized cigarette packs with handy opening-tape. Other Models in the 700 Series are used to wrap pipe tobacco, candy, cough drops and drugs.
SERIES 800		**High-speed heavy-duty fully automatic bundling machines.**	Using kraft paper or film, Models in this Series are used for high-production bundling of a wide variety of products in the drug, toiletries, tobacco, and food fields.
SERIES 900		**Custom-built high-speed automatic banding machines.**	Originally developed for the soap industry to band multiple units of bar soap at high speed, other Models in the 900 Series are available for banding stationery, stacks of labels and for "premium" work.

Call or Write:

SCANDIA PACKAGING MACHINERY COMPANY

North Arlington, N. J. WYman 1-8400

Visit Scandia's exhibit, Booth at PMMI Show, Cobo Hall, Detroit, November 7-10

SCANDIA

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For more information circle No. 201 on Reader Service Card

Photo courtesy of L. H. Philo Corp., New York, N. Y., and Package Machinery Co., Springfield, Mass.

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PACKAGE engineering

NOVEMBER 1961 • VOLUME 6 • NUMBER 11 • AN ANGUS J. RAY PUBLICATION

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Our December, 1961 issue will carry a cumulative editorial index for the year, listing our feature articles by subject and author.

Package Engineering is indexed in Engineering Index

THERE'S MUCH LESS CHANCE OF SLIPPING WHEN CARTONS ARE FRICTIONIZED WITH DU PONT LUDOX®

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A note from the Publisher

Package Engineering to publish a catalog

For about a year we have been working on a catalog of packaging machinery, equipment, and components that we believe will be an excellent reference book to complement the monthly issues of PACKAGE ENGINEERING.

The first issue of The Package Engineering Catalog will be published in June, 1962 and every other year thereafter.

Business manager of the catalog will be Lee B. Bergstrom, who joined the PACKAGE ENGINEERING staff in September after some 11 years experience in the packaging and publishing field.

I am sure that most buyers of packaging machinery at one time or another have had questions about sources of supply that the catalog will answer. For instance, it will enable you to locate a manufacturer of a piece of equipment if you only know the trade name or to find the address of the sales office nearest to you of a particular machinery manufacturer. These and many other questions regarding scources of supply will be readily answered in the catalog.

The Package Engineering Catalog will not list sources of supply for packaging materials and containers but will be published exclusively as a buying guide of packaging machinery, equipment, and components. It will contain no encyclopedia or textbook style editorial content.

It will contain:

1. An alphabetical listing of every known American packaging machinery manufacturer.

2. An index of every known American packaging machinery manufacturer, classified by the type of equipment it makes.

3. An alphabetical index of machine trade names, identifying the type of equipment and the name of the manufacturer.

4. A comprehensive listing of packaging machinery manufacturers' sales outlets giving complete addresses of: home offices, branch offices, sales agents, distributors.

We will have a dummy of the catalog in our booth—Booth 339—at the PMMI Show. If you'd like to know more about it, please stop by.

Angus J. Ray

Publisher

PACKAGE engineering

AN ANGUS J. RAY PUBLICATION

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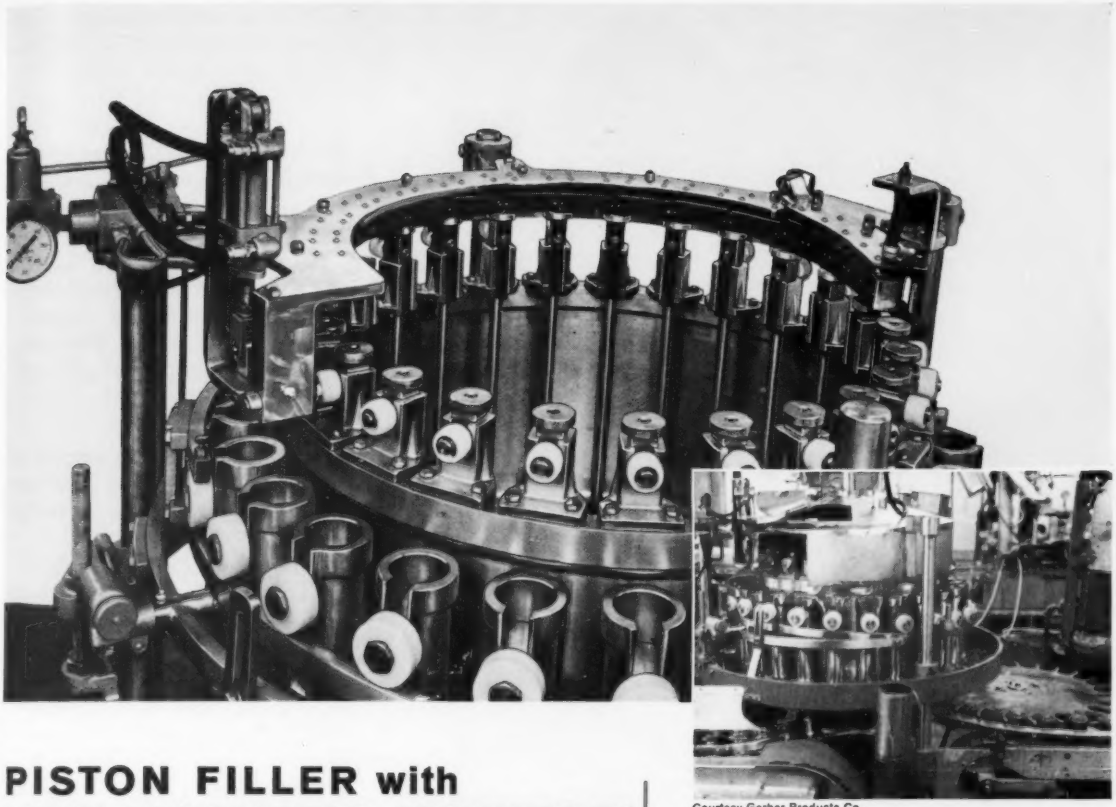

Courtesy Gerber Products Co.

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prevents valve damage and costly down-time

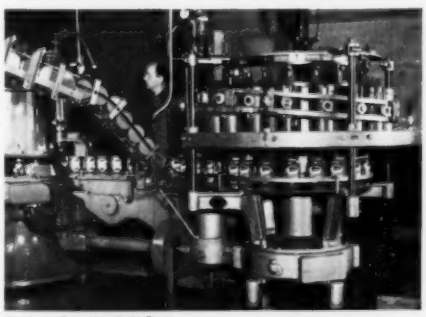
The Magnetic Monitor on VOTATOR piston fillers consists of a combination of indestructible permanent magnets and the pneumatic lift for positioning the valves. This assembly, with only two moving sections, provides:

a. Positive no-can, no-fill operation.
b. The elimination of *every* possibility of a valve jam due to foreign material in the product or the malfunction of any associated equipment.
c. A completely smooth valve action to eliminate all splashing of product.

This is another VOTATOR piston filler *first* that warrants your immediate interest. You will quickly recognize the advantages and important savings it offers. Write *today* for Bulletin PED274 Girdler Process Equipment Division, Chemetron Corporation. Louisville 1, Kentucky. Sales Offices: Chicago; Louisville; Marietta, Ga.; Montclair, N. J.; San Francisco.

*Trademark, Patent applied for

New, higher standards of packaging economy are being realized by processors of a wide variety of products. VOTATOR Piston Fillers give close-tolerance filling of liquids and viscous materials at remarkable speeds. No-container-no-fill controls safeguard against interruption of operation and waste. And, new "Magnetic Monitor" prevents costly damage and downtime.



Courtesy The Wakefield Group

Votator
Trademark
a Product of CHEMETRON Corporation

For more information circle No. 204 on Reader Service Card

For your calendar

November 6-8. AMA briefing session on military preservation and packaging:
Ambassador Hotel, Los Angeles, Calif. Contact: John L. Wood, packaging coordinator, American Management Association, 1515 Broadway, New York 36, N.Y. *Telephone: JUdson 6-8100.*

November 7-10. Packaging Machinery Manufacturers Institute Show of 1961:
Cobo Hall, Detroit, Mich. Contact: W. L. Redding, Hanson & Shea, Inc., One Gateway Center, Pittsburgh 22, Pa. *Telephone: ATlantic 1-8552.*

November 8-9. PMMI Preventive Maintenance Conference-Workshop:
Cobo Hall, Detroit, Mich. Contact: Richard Wellbrock, New Jersey Machine Corp., 1600 Willow Ave., Hoboken, N.J. *Telephone: OLdfield 9-0483.*

November 13-14. Society of Packaging & Handling Engineers 1961 National Packaging and Materials Handling Competition, and 7th Annual Eastern Packaging and Handling Show:
Fifth Regiment Armory Hall, Baltimore, Md. Contact: C. Telfair Leinbach, Jr., 3120 St. Paul St., Baltimore 18, Md. *Telephone: HOpkins 7-6363.*

January 21-24, 1962. Canning Machinery and Supplies Association 54th Annual Exhibit:
Americana Hotel, Bal Harbour, Miami Beach, Fla. Contact: W. D. Lewis, secretary-treasurer, Canning Machinery and Supplies Association, 4630 Montgomery Ave., Washington 14, D.C. *Telephone: OLiver 6-6979.*

January 22-24, 1962. National Canners Association 54th Annual Convention:
Americana Hotel, Bal Harbour, Miami Beach, Fla. Contact: R. F. Alexander, National Canners Association, 1133 20th St., N.W., Washington 6, D.C. *Telephone: FEderal 8-2030.*

February 6-7, 1962. University of Wisconsin Engineering Institute on packaging line problems:
Wisconsin Center Building, Madison, Wis. Contact: Richard A. McCormick, institute coordinator, department of engineering, University of Wisconsin, Madison, Wis. *Telephone: ALpine 5-3311, Ext. 2815.*

February 8-9, 1962. University of Wisconsin Engineering Institute on practical package development:
Wisconsin Center Building, Madison, Wis. Contact: Richard A. McCormick, institute coordinator, department of engineering, University of Wisconsin, Madison, Wis. *Telephone: ALpine 5-3311, Ext. 2815.*

March 13-14, 1962. Chemical packaging committee of the Manufacturing Chemists' Association. 2nd symposium on packaging of chemical products:
Chase-Park Plaza Hotel, St. Louis, Mo. Contact: Richard D. Lambert, Manufacturing Chemists' Association Inc., 1825 Connecticut Ave., N.W., Washington 9, D.C. *Telephone: HUdson 3-6126.*

April 9-11, 1962. AMA 31st National Packaging Conference:
Roosevelt Hotel, New York, N.Y. Contact: John L. Wood, packaging coordinator, American Management Association, 1515 Broadway, New York 36, N.Y. *Telephone: JUdson 6-8100.*

April 9-12, 1962 AMA 31st National Packaging Exposition:
Coliseum, New York, N.Y. Contact: John L. Wood, packaging coordinator, American Management Association, 1515 Broadway, New York 36, N.Y. *Telephone: JUdson 6-8100.* *(End)*

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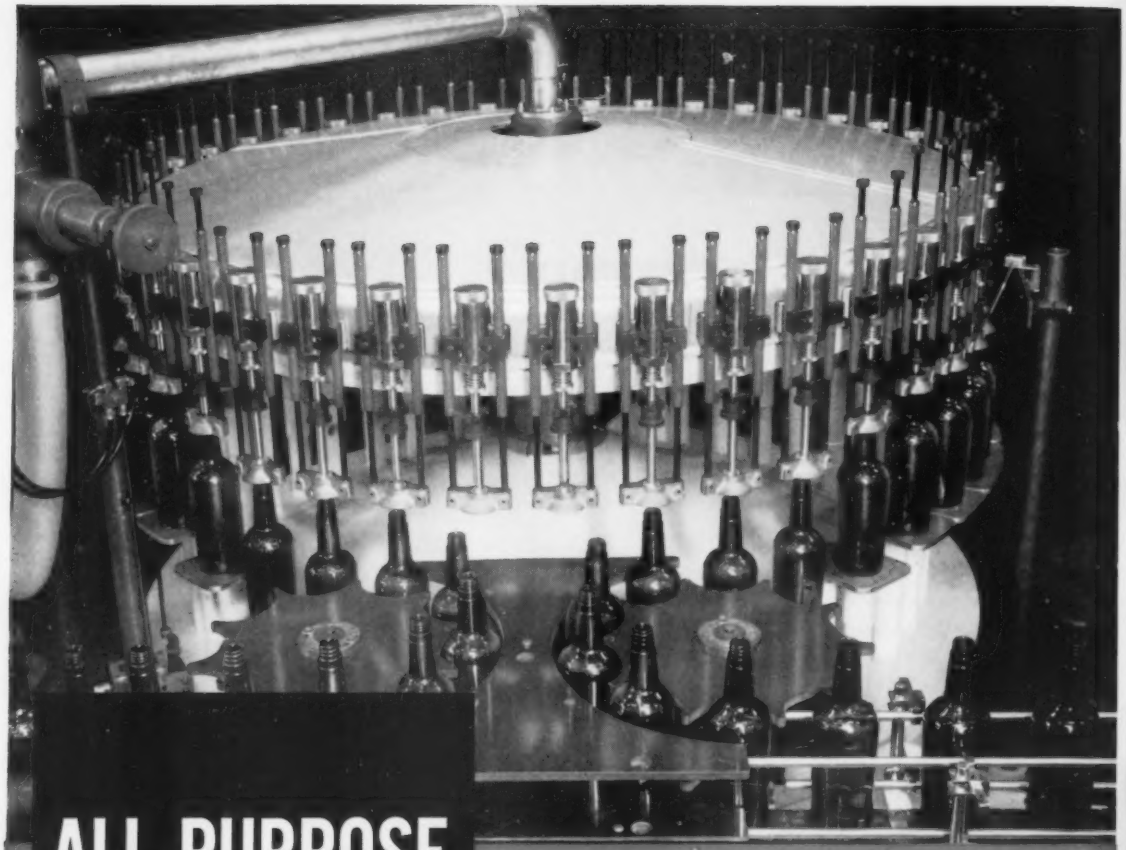

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It's aptly named "All Purpose." It will operate with any combination of vacuum, gravity or pressure filling method that suits your situation . . . dependent on what you have to fill.

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The complete technicalities of this machine's *lower cost per container* efficiency are contained in Bulletin No. 148 . . . "Pneumatic's Liquid Fillers." Write for it.

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PACKAGING

CURRY *and* / *or* CANDY

MARATHON HAS THE ANSWER

Printing at Marathon means so many things. Letterpress, offset, roto, flexograph. In addition Marathon makes engravings for colorful package pictorials, etches roto cylinders, even produces printing inks.

And *Marathon has the answer* to the material you want to print . . . paper, paperboard, film, foil; coated or laminated sheets or rolls.

Take Curries like Uncle Ben's Curried Rice, for example. This carton features 4-color litho printing on HiFi* D Board. Marathon skills enter into every production step . . . design, photography, plates, printing. Inner pouches, MARAFLEX D for rice and MARAFLEX PF for seasoning, are specially designed for proper product protection.

Candy overwraps such as these Charms wrappers are another proof of Marathon printing that sells. This roto-printer wrapper features six colors on Marathon Hi-Fi paper, is of Glamakote* to glamorize the final package. Regardless of the product you package, the point to remember is this: *Marathon has the answer.*

General Packaging Department, Marathon, A Division of American Can Company, Menasha, Wisconsin. In Canada: Marathon Packages Limited, Toronto 3.

*Registered Trade-Mark

For packaging . . . and ideas . . .

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The PULSE of packaging

Trends to watch:

Transparent meat trays vacuum-formed from 0.008-in. sheets of oriented polystyrene have gained such customer acceptance at FISHER FOODS INC., Cleveland supermarket chain, that DOBECKMUN DIV. OF THE DOW CHEMICAL CO., is planning full volume production of it. It thinks the tray market is about 7 billion units a year. It attributes the acceptance of the tray to transparency and to meat not sticking to it.

Injection-molded polypropylene caps with built-in gaskets are arousing much interest among liquor distillers, according to CONTINENTAL CAN CO., whose researchers are developing the cap. Their indications are that mass production will permit pricing this new cap competitively with standard caps.

Continental Can also reports test marketing a polyester/foil/vinyl cook-in pouch that withstands thermal processing in conventional retorts. It thinks the first item to use this will be a 5-oz. package of tomato paste.

Also its glass research and development group has formulated new protective coatings for glass that cannot be removed by water and which withstand boiling and autoclaving. We understand the coatings have good lubricity and protect glass from rough handling and subsequent loss of strength.

GENERAL MILLS *is now trying something new in cereal packaging —its Pour 'N Seal spout. It uses half the top and one end flap as sides of the spout. A user lifts two parts of the boxtop-half and the end-flap —then pours. Reverse the process to close. Then use a tab to tuck the spout.*

A drive for lighter and thinner tin plate goes on. Latest reports from U. S. STEEL CORP. indicate a new grade with a coating of 1/10 lb. of tin per base box. Previously this grade was available only with ¼ lb. of tin coating per base box.

Bakers add up to one of the largest markets for polyethylene film according to U.S. INDUSTRIAL CHEMICALS CO. It says bread overwraps may well consume 25 million lb. in 1961 and notes that polyethylene bags for specialty loaves are also increasing in use.

Groups in the news:

THE SOCIETY OF PACKAGING AND HANDLING ENGINEERS *reports that Sen. Philip A. Hart (D.-Mich.) will talk on deceptive packaging at its package engineering seminar being held in Baltimore November 13-14. The seminar also plans to take a close look at the military build-up in government packaging as well as flexible plastic foam packaging for the future.*

Undertaking studies calculated to eliminate overpackaging wherever it exists represents a major project that BULK PACKAGING AND CONTAINERIZATION INSTITUTE is now planning. Further, its latest reports indicate plans for studies to evaluate shipments of dry products by fluidization. It is also developing information on bulk containers.

Those wishing more information should contact the Institute: P.O. Box 3444, Grand Central Station, New York, 17, N.Y., Murray Hill 4-6497.

ASTM is changing its name to AMERICAN SOCIETY FOR TESTING AND MATERIALS. It says this change puts added emphasis on its research work into the nature of materials.

AMERICAN STANDARDS ASSOCIATION *now has a new sectional committee to standardize small containers—the latest phase of its work on the packaging of petroleum products. The Packaging Institute is the administrative sponsor of this project on small containers.*

Latest development within the PACKAGING INSTITUTE'S roster of technical committees is the formation of a plastics committee, reflecting current interest in molded and formed containers. The committee will concentrate on blow molding and pressure and vacuum forming.

Warning packagers of the danger of ignoring performance factors and variables in both machinery and materials, PACKAGING MACHINERY MANUFACTURERS INSTITUTE and NATIONAL FLEXIBLE PACKAGING ASSOCIATION announced liaison committees for a coordinated program to insure reliable and uniform operation of packaging machinery.

The groups are urging such cooperative action as the comparison of blueprints by machinery manufacturers and flexible packaging suppliers as a factor in cutting excessive waste and delay.

Notes from the government:

As its final action in an extensive revision of FDA labeling regulations on drugs and devices, the FOOD AND DRUG ADMINISTRATION *has published a regulation requiring manufacturers to provide the medical and pharmaceutical professions with more information in the labeling of most drugs and devices that are sold only on prescription.*

(Turn page)

Blister Pack by
HOPPLE PLASTICS, INC.
CINCINNATI, OHIO

Why have rack sales of this manufacturer increased 1,000% in five years?

—Merry Manufacturing Company finds pilferage reduced, too.

Low-priced "My Merry Toys" rely heavily on impulse buying to maintain sales at high volume.

That's why the Merry Line is packaged and rack-displayed in transparent blister packs of Celanese Acetate.

Blister packs give maximum visibility to merchandise . . . keep multi-part items safely together . . . protect against dust, damage, and pilferage . . . *and do it all inexpensively.*

The blister pack was made-to-order for today's self-service marketing. And sparkling Celanese Acetate is made-to-order for blister packs. We can help you adapt this popular packaging method to your products. Write: Celanese Plastics Company, Dept. 105-K 744 Broad Street, Newark 2, New Jersey. Celanese®

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MATERIALS FOR Celanese MODERN PACKAGING

POLYETHYLENE FILM . . . ACETATE FILM AND SHEETING . . . PLASTIC CONTAINERS

from ALCOA November, 1961

Current Closure Report

Alcoa Pilferproof—the most widely used closure in the wine and liquor field. Vintners, distillers, packagers of pharmaceuticals, cosmetics and most recently, food products, are putting their confidence behind the Alcoa® Pilferproof Closure in increasing numbers.

Why? Because Pilferproof Aluminum RO® (Roll On) Closures provide the most effective guard against pilferage on the market today . . . a hermetic seal everytime, plus a one-step operation for complete product protection. When a Pilferproof Closure is twisted for removal, aluminum bridges which connect the threaded upper portion and lower locking band are broken. The band remains on the bottle. It cannot be removed easily.

Pilferproof application is accomplished by two sets of spinning rollers. One set rolls the threads, the other set rolls the breakaway band securely under the locking ring on the glass finish.

Alcoa Aluminum Stericap—the most widely used closure in the field of Medicine . . . for serums, antibiotics, whole blood, intravenous solutions and other injectables. Alcoa Stericaps are universally recognized as the ideal closures by packagers of pharmaceuticals and by the entire medical profession, for they not only serve to secure the sealing medium—usually rubber or neoprene stoppers—but also to make the package tamperproof and assure the retention of the product's quality, strength, sterility and laboratory-sealed freshness.

Stericaps are available in a variety of sizes and in four styles—single-piece Stericap and cover cap; dual-purpose Stericap; three-piece Stericap; and the tear-down Stericap—to meet the requirements of various products. Each style features the tear-off-tab method of removal for pilfer protection.

Alcoa Hidden-Thread—a prethreaded closure with functional qualities far superior to ordinary screw caps. For those who desire the clean contour of a straight-sided cap, yet require the added sealing abilities of aluminum, Alcoa designers and engineers have developed Hidden-Thread Closures. They will not crack or break, nor will they "back off" and leak through lack of frictional holding power. In addition to these extra advantages, Alcoa Aluminum Hidden-Thread Closures are often more economical than similarly styled caps of other materials, particularly when a special color is required.

This double-walled cap, made from one deep-drawn shell, has threads in the inner wall. The liner is oversized and extends to the inside surface of the outer wall, making it impossible for the liner to fall out of the cap or be held on the glass sealing surface when the cap is removed. Since the liner turns freely during application, the danger of cutting or scoring the facing material is eliminated.

A top-rated aluminum closure for any application. Alcoa Aluminum closures are available in many types and styles. Whatever you need in a seal can be supplied by an aluminum closure that will meet your most rigid requirements—one that has proven its value in application after application, in industry after industry.

Write for "Alcoa Aluminum Closures"

Your Complete Packaging Service Center

to ALCOA

I want an Alcoa representative to contact me with regard to

- ☐ **Foil Packaging**
- ☐ **Aluminum Closures**
- ☐ **Cans and Containers**

- ☐ Foods
- ☐ Frozen Foods
- ☐ Meats
- ☐ Fish
- ☐ Pet Food
- ☐ Pharmaceuticals
- ☐ Drugs
- ☐ Cosmetics
- ☐ Toiletries
- ☐ Wine
- ☐ Liquor
- ☐ Chemical and Household Products
- ☐ Dairy Products
- ☐ Beer
- ☐ Industrial Parts
- ☐ Instant Beverages
- ☐ Tobacco Products
- ☐ Petroleum Products
- ☐ Condiments
- ☐ Seeds
- ☐ Others

(Fill in specific applications)

_____

_____

_____

Entertainment at Its Best
ALCOA PREMIERE with Fred Astaire as Host
Tuesday Evenings, ABC-TV

ALCOA ALUMINUM

BETTER PACKAGING

Aluminum Company of America
1737-L Alcoa Building, Pittsburgh 19, Pa.

Name_____

Company_____

Address_____

City_____ Zone____ State____

FDA says the regulation will require "a package insert" to provide all necessary information for safe, effective use of the drug or device—including any information as to when its use would not be safe. This takes effect March 5, 1962.

Charles A. Lewis, until recently director, containers and packaging division, BUSINESS AND DEFENSE SERVICES ADMINISTRATION, U.S. Department of Commerce, is now the director, Office of General Products and Services of BDSA. Albert B. Clunan is now acting director of the containers and packaging division.

The Army's Rossford Ordnance Depot says that the seminars planned for the period September-November 1961 regarding MIL-STD-726, Packaging Requirements Code, are now to be conducted "at Department of Defense level." The JOINT MILITARY PACKAGING TRAINING CENTER (working with other interested military services) will conduct the seminar sessions. Locations and dates are yet to be announced.

Packaging across the seas:

Topics under study at the 7TH INTERNATIONAL SYMPOSIUM *on foreign substances in food held last month at Belgrade, Yugoslavia, reveal the interest in the subject. The International Commission of Food Industries, The Permanent International Office of Analytical Chemistry, and The European Packaging Federation participated with the coordinating committee for packaging, Federal Chamber of Industries of Yugoslavia, being the organizer.*

The program embraced glassware, metallic packages, as well as those of paper, vegetable fibers, and plastics. Much attention went to the technological aspects of package permeability.

CLAVELL, BATE & NEPHEWS LTD. of Nelson, Lancashire, England, now has a "technical partnership" agreement with CROMPTON & KNOWLES PACKAGING CORP., Worcester, Mass. Further, C & K is sending Lennart E. Ivarson to its Zurich office to work with both companies.

A wide range of packaged food items now represent a large share of Ireland's exports to the United States, according to IRISH EXPORT BOARD. It says these exports have trebled in the last five years and for the fiscal year just ended represent a value of 31 million dollars.

More expansion for packaging:

REXALL DRUG AND CHEMICAL CO. *has acquired* WHITE METAL MANUFACTURING CO., *collapsible metal tube and aluminum can producer.*

A new firm, METRO ADHESIVES, INC., North Bergen, N.J., will manufacture a complete line of adhesives. This firm is an affiliate of HUDSON INDUSTRIES CORP.

This month WEBER PLASTICS, INC., Stevens Point, Wis., will open a new plant in Minneapolis.

At Statesville, N.C., INTERNATIONAL PAPER CO.'s *container division will build a corrugated shipping container plant.*

(*Turn Page*)

THE FLINTKOTE CO.'s new $2 million corrugated container plant at Magnolia, Miss., is now in production.

MIDWEST FOAM PRODUCTS CO., Evanston, Ill., and SHELLEY URETHANE INDUSTRIES, INC., Los Angeles, have merged. The new firm, which will have headquarters in Evanston, will be known as URETHANE INDUSTRIES INTERNATIONAL INC.

A. H. WIRZ, INC., *has acquired 27,000 sq. ft. of warehouse space adjacent to its Chester plant.*

GIRDLER PROCESS EQUIPMENT DIV. of CHEMETRON CORP. has purchased the assets of SUPER MACHINE WORKS, INC., San Francisco, and will now produce equipment for automatic production of aluminum bottle caps.

At its recently completed plant in Agawam, Mass., CROMPTON & KNOWLES PACKAGING CORP. will manufacture Vol-Pak modular pouch packaging machines. The C & K parent company recently acquired VOL-PAK INC.

TURNER TUBE CORP. *will build a 35,000 sq. ft. plant in South Brunswick Township, N.J.*

To produce additional quantities of its new microcrystalline cellulose for use in the preparation of calorie-controlled and convenience foods, AMERICAN VISCOSE CORP. is building a plant in Newark, Del.

What people are doing:

General Foods has named WILLIAM H. ENZIE manager, packaging development and procurement services, a newly created position.

LELAND R. SRIGLEY, *director of industrial engineering, Parke, Davis and Co., has been elected vice president in charge of the packaging division, American Management Association.*

St. Regis Paper Co. has appointed O. R. TITCHENAL manager of packaging machinery for the engineering and machine division.

HERBERT OGLESBY, former manager of Abbott Laboratories' finishing department, is now packaging operations manager.

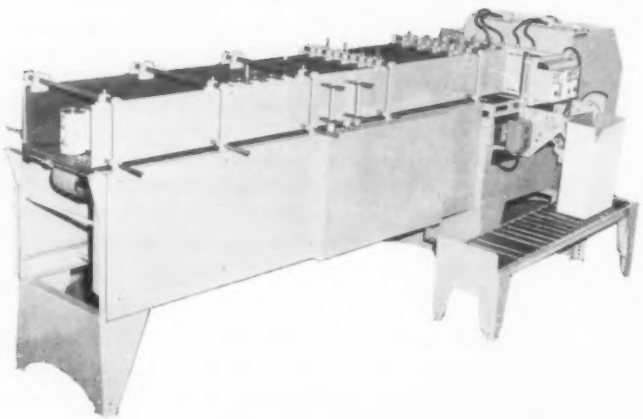
Five sales appointments at Hayssen Manufacturing Co. are: KENNETH C. CRAIG, *former Midwestern sales manager of F. B. Redington Co., sales area manager;* JOSEPH G. WEGER, JR., *former technical coordinator at Hayssen, and* ALBERT E. NEITZLE, *former sales engineer with DeVilbiss Co., sales area managers;* THOMAS H. CROWE, *former sales engineer with Allen Bradley Co., export sales coordinator;* DAVID L. HOUMES, *formerly with Hayssen's engineering department, technical coordinator.*

IMCO Container Co. has named LEONARD F. ALBERS central division sales manager. Mr. Albers was sales manager. He was formerly with Container Corp. of America.

ROBERT P. EGANHOUSE will manage Aluminum Co. of America's new package design department.

Thilmany Pulp & Paper Co. has transferred ARTHUR R. MILLER, *former manager of the Chicago sales office, to the marketing division of the plastics department, Kaukauna, Wis.* (*End*)

End Loading Caser by NEW WAY



Features

Bead to body damage eliminated. Cans can not climb bead to body. No marking of labels.

Smooth trouble-free in-feed, cans are accumulated on live rollers.

Fully automatic let-down arm. Operator positions case, machine does the rest.

Simple, rugged construction. Low maintenance. Moving parts easily accessible.

One motor drives entire machine.

Unique construction allows quick change of discharge side, also allows two side discharge if speed requires it.

Adjustable for large range of can diameters.

Speeds up to 25 cases per minute.

Write factory for Bulletin PE-1115
Check factory also for

Complete line of Labeling, Case Packing, Carton Sealing, Carton Printing and Liquid Filling Machines.

The Best IN LABELING FILLING AND PACKAGING Equipment

Chisholm-Ryder
COMPANY OF PENNSYLVANIA
HANOVER, PENNSYLVANIA

How foil/paper laminating adhesive acts as a "relating agent"

POLYMER REPORT

Photomicrograph of POLYBOND PF-14® bond reveals intimate, continuous adhesion.

POLYBOND PF-14, a casein-latex emulsion, is applied to the foil as an extremely thin, wet film about 0.2 mil thick. The adhesive wets the foil surface completely. At the same time, acid radicals in the POLYBOND attack the oxide coating on the foil, slightly etching its surface to provide good mechanical anchorage.

When the wet foil is brought into contact with the kraft at the nip of the combining rolls, the POLYBOND PF-14 immediately drops off its fluid components which penetrate into and around the kraft fibres. (The photomicrograph illustrates the depth of this penetration . . . and the almost invisibly thin glue line which results.)

This penetration "sizes" and eventually strengthens the surface of the paper to prevent a weak, superficial bond. The penetration into the paper occurs quickly . . . so that paper and foil are immediately locked in position, preventing creep which causes wrinkles and other machine difficulties.

The very small amount of water introduced into the paper dries quickly, returning the paper to its normal moisture content.

"Adhesion Engineering"

This bond is the result of advanced adhesion engineering which changes each surface so that both materials become physically and chemically "related" . . . in contrast to systems wherein the adhesive bonds merely by forming a mortar or putty between the surfaces.

POLYBOND PF-14 is used for high speed laminating of foil to groundwood, paperboard, kraft and bleached kraft and produces a flexible, odor-free lamination with high resistance to water, heat and alcohol.

Advantages of POLYBOND PF-14 type of bond

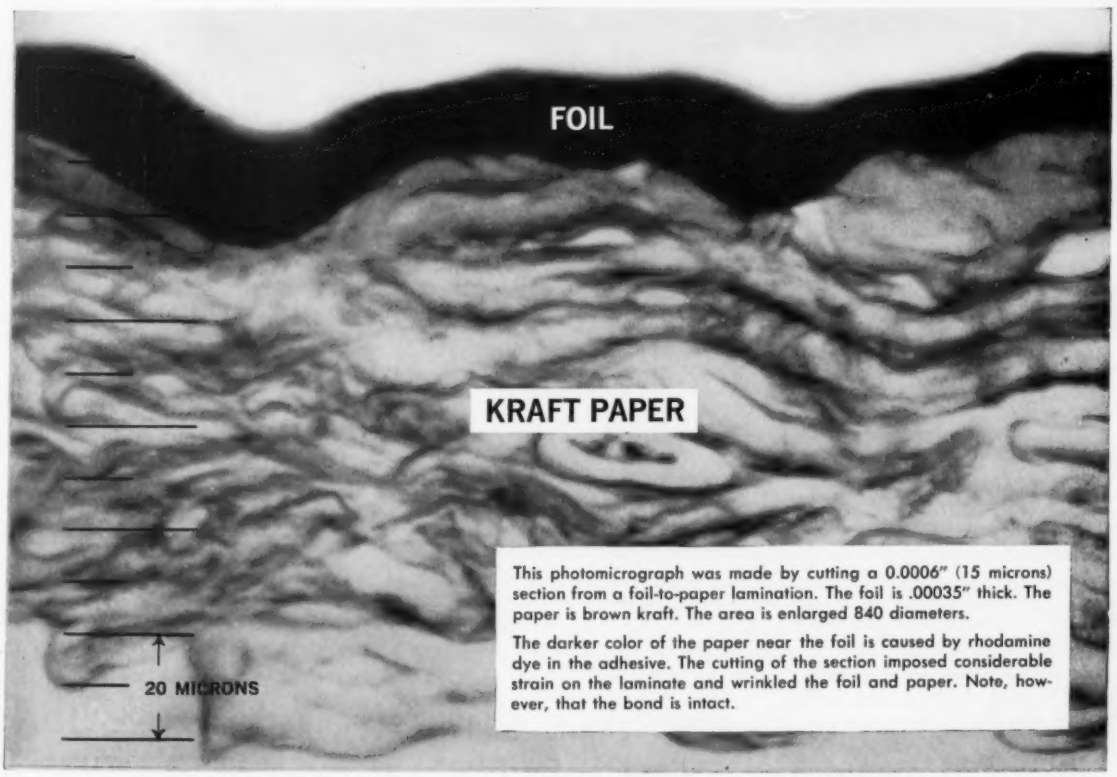
Greater strength through more intimate contact and attraction of surfaces . . . and elimination of possible "weak links" such as poor cohesive strength of a cured mortar-like adhesive.

Greater machine speed through minimum increase in moisture content at bond area.

Lower cost through minimum thickness of glue film and greater "mileage."

Free bulletin

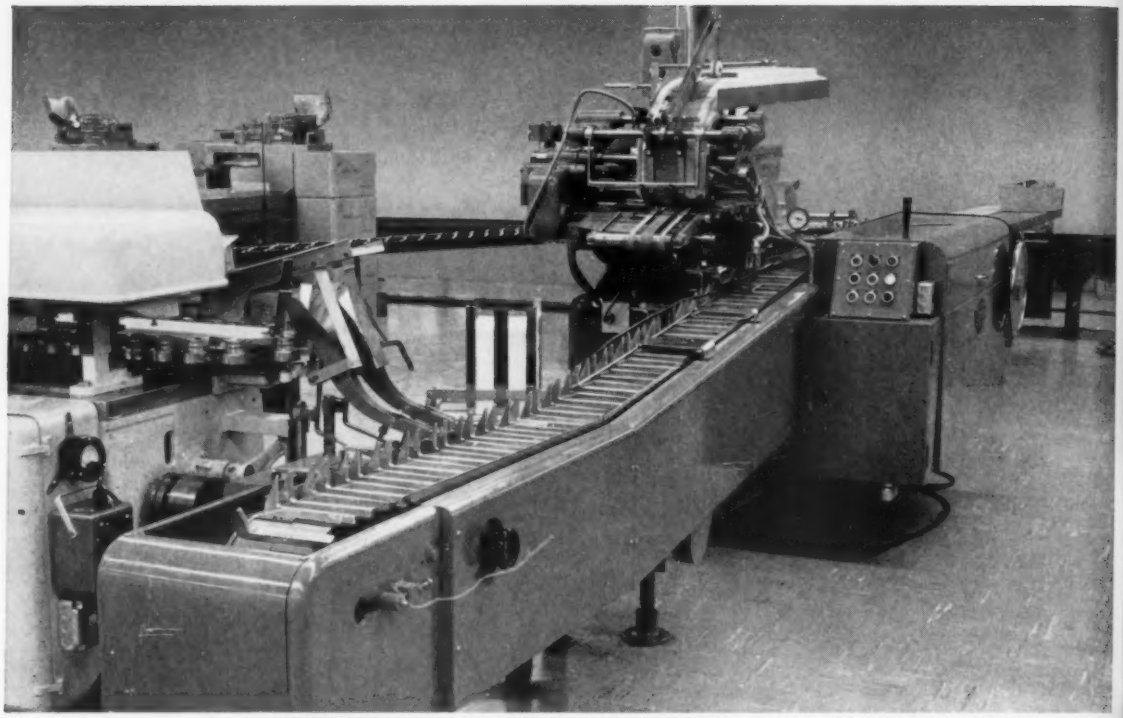
Details on manipulating physical properties of POLYBOND foil-laminating adhesives for various types of structures and end use requirements. Address: Polymer Industries Inc., Dept. P11, Springdale, Conn., or Polymer Southern Div., Dept. P11, Box 2184, Greenville, S. C.



This photomicrograph was made by cutting a 0.0006" (15 microns) section from a foil-to-paper lamination. The foil is .00035" thick. The paper is brown kraft. The area is enlarged 840 diameters.

The darker color of the paper near the foil is caused by rhodamine dye in the adhesive. The cutting of the section imposed considerable strain on the laminate and wrinkled the foil and paper. Note, however, that the bond is intact.

Polymer Industries *Polymers, copolymers and solvent-base compounds for bonding, coating, sizing and laminating. Plants at Springdale, Connecticut and Greenville, S. C.*



CARTON-KING automatically transfers tubes from tube filler to pockets of article conveyor. Leaflet is inserted around tube cap. Cartons are fed from magazine and expanded by new high-speed rotary motion carton feed. Tubes and leaflets are smoothly and continuously inserted into cartons, which are then closed and ejected.

Leeming anticipates 240% efficiency increase with new Redington Carton-King

New concept in automatic cartoning combines high speed and versatility

Thos. Leeming & Co. recently installed the new Redington CARTON-KING in their packaging line for toothpaste and other products at the Parsippany, N.J., plant. Reporting on this new line, Mr. Robert Clark, Vice President, says, "We expect this new equipment to give us a 240% increase in operating efficiency."

The CARTON-KING is a totally new concept in fully automatic, high speed, continuous motion horizontal cartoning. It handles a wide range of carton sizes at speeds up to 600 per minute on sustained production. "Building block" construction allows the basic machine to be equipped with many special attachments to meet specific package requirements.

The CARTON-KING is the latest example of Redington engineering and design know-how acquired during 65 years of leadership in the cartoning field. For complete details of the new CARTON-KING . . . or the most efficient solution to any packaging problem, write Redington Division.

See the new CARTON-KING, Booth 521 P.M.M.I. Show

C&K Stands out in PACKAGING

REDINGTON AUTOMATIC MACHINES for CARTONING WRAPPING • SPECIAL PACKAGING

CROMPTON & KNOWLES PACKAGING CORPORATION

WRAP-KING DIVISION Agawam, Mass.

REDINGTON DIVISION Bellwood, Ill.

INTERNATIONAL SALES AND SERVICE OFFICES: NEW YORK CHICAGO ATLANTA WINTERHAVEN, FLA. DALLAS TORONTO MONTREAL MILAN ZURICH LONDON: CLAVELL BATE AND NEPHEWS, LTD.

For more information circle No. 212 on Reader Service Card

Circle No. 213 on Card ►

PROBLEM: How to wrap a package so it will take rough handling.

SOLUTION: International Paper's Gator-Hide® Extensible Kraft has a built-in stretch that withstands sudden shocks.

THESE PACKAGES are wrapped with International Paper's rugged Gator-Hide Extensible Kraft. You can drop them, throw them, bounce them. This wrap can take it!

Gator-Hide Extensible Kraft actually *stretches* to absorb sudden shocks without ripping. This makes it the ideal wrap for any product that must withstand rough handling. Magazine publishers, for example, have found that Gator-Hide Extensible Kraft sharply reduces their post office rejection rate.

International Paper pioneered the introduction of white, black and golden brown extensible kraft. Now, there are many special colors available. And Gator-Hide Extensible Kraft is supplied in either sheet or roll form, with such features as electric eye cut-off markings.

Gator-Hide Extensible is also a remarkably uniform kraft paper. This makes it ideal for superior flexographic printing. Platemakers, inkmen and pressmen in our Southern Kraft Division have been extensively trained in this process. Using modern 3-color flexographic presses, they'll brilliantly print your sales message. Give you wrappers that *promote* as they protect.

In paper and paperboard, International Paper's sales and technical staff provides you with packaging that's designed *from the beginning* to suit *your* product and solve *your* problems.

Call any of our seventeen Southern Kraft offices. Or contact your paper merchant—he's probably been doing business with us for years.

INTERNATIONAL PAPER

NEW YORK 17, N. Y.

Manufacturers of papers for magazines, books, newspapers • papers for home and office use • converting papers • papers and paperboards for packaging • labels • folding cartons • milk containers • shipping containers • multiwall bags • grocery and specialty bags and sacks • pulps for industry • lumber, plywood and other building materials

The LOWEST PRICED Shipping Room Electric ON THE MARKET!

THE REVOLUTIONARY

"310"

DERBY ELECTRIC

GUMMED TAPE DISPENSER

TAPE AT A TOUCH!

$144.00

The new Derby "310" electric dispenser was designed for general shipping room operations requiring a constantly changing variety of lengths of tape. Dispenses both reinforced and Kraft tapes in widths up to three inches. There are no dials to set, no adjustments to make. A touch delivers any length instantly! Its very simplicity and ease of operation makes operator-fatigue a thing of the past! The Derby "310" is priced lower than any other electric on the market, yet has all the quality features and dependable performance that are built into all Derby dispensers. Prove it in your own shipping room without obligation!

YOU CAN'T BEAT THE DERBY "310" FOR ECONOMY AND SIMPLICITY

WRITE DEPT. PE-11

FOR FREE DEMONSTRATION

DERBY SEALERS DIVISION

MINNESOTA MINING AND MANUFACTURING COMPANY

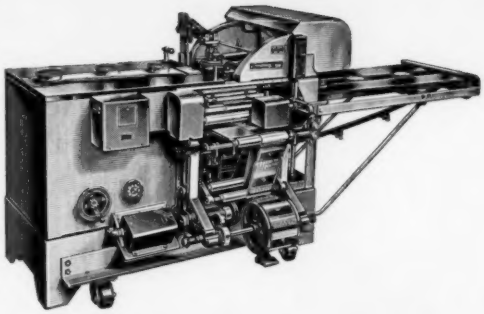
DERBY, CONNECTICUT

3M COMPANY

. . . WHERE RESEARCH IS THE KEY TO TOMORROW

MODEL H-1 HOODING MACHINE

This efficient high speed hooding machine is being used in production at speeds in excess of sixty containers per minute. The straight line motion of this machine insures smooth foil container handling and uniform line flow.



EKCO-ALCOA PACKAGING EQUIPMENT
is market sized

Whether the size of your market requires high speed automatic packaging equipment or low-cost manual equipment, you can get just the machine you need from Ekco-Alcoa. The H-1 Hooding Machine, for example, is a completely automatic machine engineered specifically for hooding printed light gauge aluminum foil sheet, in register on foil containers. This machine performs equally well with rectangular or round containers. Change over from one size to another is quick and easy. The H-1's simple design makes it easy to maintain and operate.

The Model II, by contrast, is manually operated, illustrating the diversity of Ekco-Alcoa packaging equipment. The operator simply places the filled container with nested cover in the base of the closure die. The foot pedal is depressed and the completed package is automatically positioned for easy removal. For specification sheets on the H-1, Model II, or other models in our equipment line, write to our Packaging Equipment Division at the address shown below.

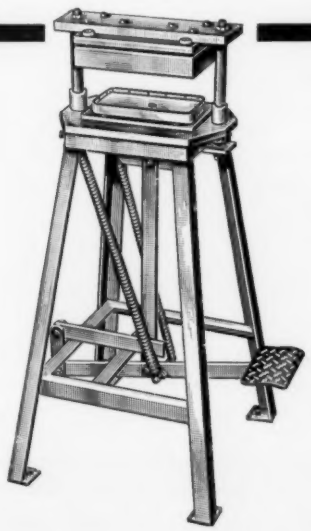
The Plus Container

EKCO-ALCOA CONTAINERS INC.
GENERAL OFFICES: WHEELING, ILLINOIS

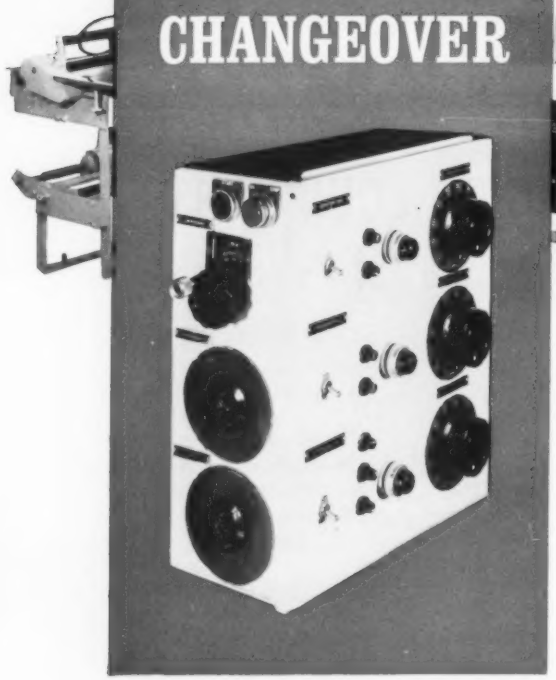
EKCO is the registered trademark of Ekco Products Company. ALCOA is the registered trademark of Aluminum Company of America. The corporate name and combination mark, EKCO-ALCOA, is used under license to the manufacturer by each of these companies.

MODEL II

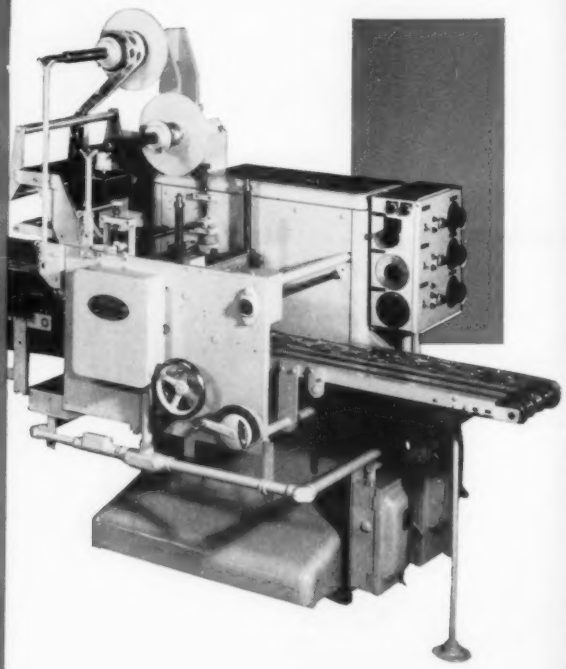
This low cost unit is ideal for market testing to determine consumer acceptance and packaging performance. The Model II is also suited for small retail operations and producers using a variety of package sizes.



INSTANT PACKAGE CHANGEOVER



See the Dial "155" Flexopaker® at PMMI Show in Detroit's Cobo Hall November 7-10, 1961. Booth 620



Dial 9 Different Pouch Sizes..... even while the machine is running! with Battle Creek's "Dial 155" Flexopaker®

Dial any one of nine different package lengths with just a flick of the wrist. A quick manual exchange of two gears extends the length range another nine sizes. A third change permits nine more different lengths. Thus 27 lengths in three standard ranges—3" to 15", 4½" to 22¼" and 6" to 30"—can be effected in minutes. For pouch width variations, merely change the roll of film and adjust the side sealing wheels by cranking them to any width between 3" and 15". This eliminates down-time associated with manual substitution of dies and subsequent wait for heat build-up in the sealing wheels. This instant flexibility of the "Dial 155" makes it the ideal machine where any operation requires numerous runs of many different items. No other pouch packaging machine offers such quick changeover to such a wide range of sizes.

Fully Automatic—At speeds as high as 80 per minute, the compact Dial "155" economically heat seals thin, irregular shaped articles between two continuous strips of heat sealable or cohesive material. The pouches can be individually severed or left joined together in continuous strips with perforations between for separation.

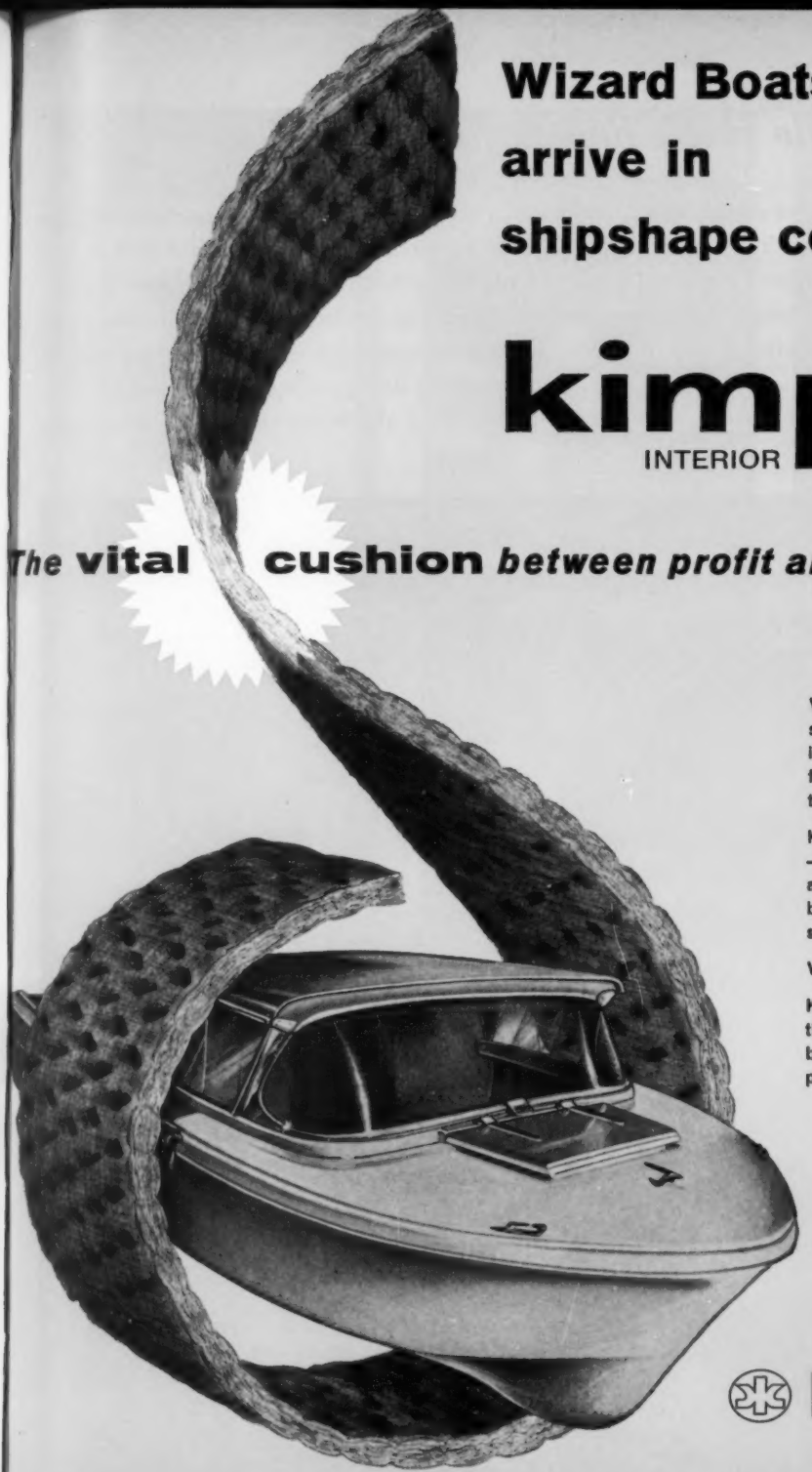
For Many Products in Diverse Industries—It easily handles a broad cross section of products in the hardware, textile, food, automotive parts, paper and industrial goods fields. Such items as gaskets, frozen pastries, bearings, electrical tape, syringes, envelopes, greeting cards, hosiery, combs, small toys and costume jewelry are a few of those successfully processed. The Dial "155" may be ideal for your product . . . inquire about it today.

Continuous Flow® PACKAGING

BATTLE CREEK *packaging machines, inc.*, BATTLE CREEK, MICH.

For more information circle No. 216 on Reader Service Card

Circle No. 217 on Card ►



Wizard Boats arrive in shipshape condition

kimpak®

INTERIOR PACKAGING

The* vital cushion *between profit and loss!

Wizard Boats are seaworthy—built to withstand foul weather and rough seas. But it's the buffeting of overland trips—from factory to dealer—that calls for the protection of KIMPAK interior packaging.

KIMPAK protects highly polished surfaces—hulls and decks—from scratches, nicks and dents. Soaks up shocks that cause breakage. And KIMPAK is clean, light, supple—easy to work with!

What can we protect for you?

KIMPAK is stocked for immediate delivery throughout the United States and Canada by leading coarse paper merchants and packaging supply firms.

Kimberly-Clark

FREE SAMPLE ROLL!

Kimpak now offers new and improved types—and most important, some lower in cost—to give you greater packaging economy. Send coupon today for FREE SAMPLE ROLL and full particulars.

Kimberly-Clark Corporation, Dept.PE-111, Neenah, Wis.

Please send sample roll of new 30" wide Kimpak interior packaging to try in my plant—at no obligation on my part.

NAME_____

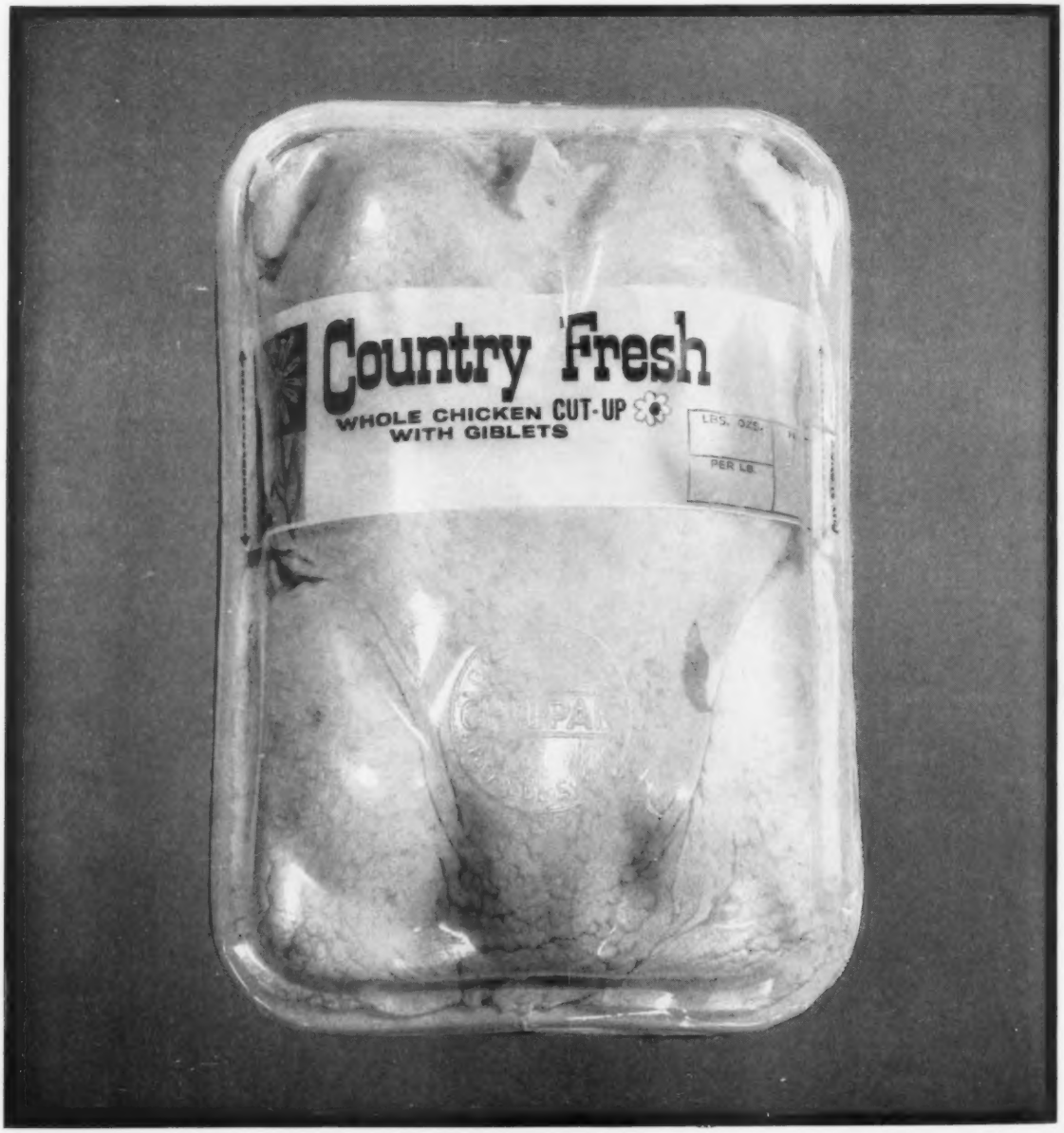
FIRM_____

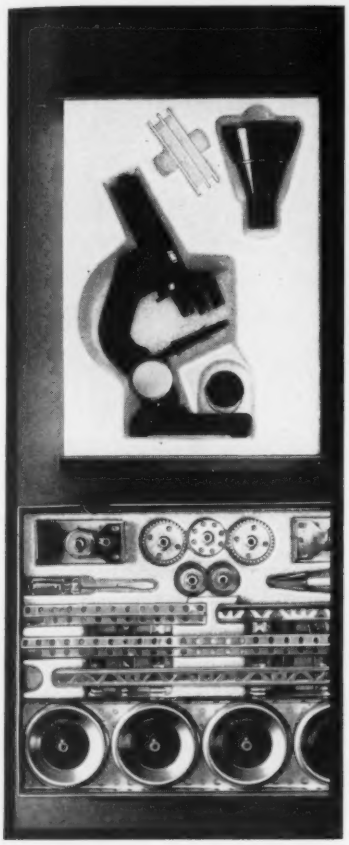
ADDRESS_____

CITY_____ ZONE____ STATE_____

New polystyrene pack boosts poultry sales

One of the world leaders in poultry processing equipment, Gordon Johnson Company, in cooperation with the Plax Corporation and skilled fabricators, has developed the most advanced poultry package since chickens first went to market. It's called the Super J-Pack, and it can be formed from thin, rigid sheets of DYLENE® polystyrene. When the see-through lid is heat-sealed to the yellow tray, the package becomes air-tight; liquids and flavor are locked in. The meat can be marketed fresh or fresh-frozen. The consumer sees what she is buying because DYLENE has good transparency, and will not discolor. DYLENE makes a strong package, one that will ship well and offer the consumer full visual appetite appeal. Similar packages will also be appropriate for meats, dairy products and baked goods.





Foam trays simplify toy packaging

A. C. Gilbert Company uses DYLITE® expandable polystyrene trays because they completely eliminate costly interior packing materials. DYLITE trays are strong, good looking, easy to assemble and load —they save on labor costs. They also cut shipping costs because they're extremely lightweight.

DYLITE packages come in any size or shape; they fit firmly around the product and protect it from shipping damage. They make an attractive display because their smooth, colorful surface won't smear, chip or flake. DYLITE parts molded by: Sullifoam, Inc., Willow Grove, Penna.

Put $170.00 in your pocket

High-speed packaging machines now make it possible for you to save *real* money—as much as $170.00 on each 1,000 pounds of the crisp, clear film you may now be using—and still have a better package! How? Use film made from SUPER DYLAN® high-density polyethylene and take advantage of its unidirectional, straight-line tear, low permeability and clarity. Furthermore, it is unaffected by extremes in temperature and humidity. Handkerchief wrapped in CONOLEX® film extruded by Flexible Packaging Div., Continental Can Co., Newark, Ohio, on a Roto Wrap Model B, manufactured by Conapac Corp., New York, New York.

Ronson calls it their luxury pack

The new Ronson CFL 300 electric shaver package is one of the best-looking you'll ever find on any store counter. The simulated leather outer case, which can later be used as a dresser jewelry box, has a convenient display tray molded from lightweight DYLITE® expandable polystyrene. Specially molded niches house the shaver, cord, travel case and travel-size bottles of lotion. The shaver is held firm, completely cushioned from shipment damage. Since DYLITE molds to fit any odd-shaped product, packaging time and money are saved. Ronson also uses DYLITE to cushion their electric hair dryer and shoe polisher. Platform molded by: Sullifoam, Inc., Willow Grove, Pennsylvania.

KOPPERS PLASTICS

No matter what your packaging problem, investigate our complete line of polyethylenes and polystyrenes. Contact Koppers Company, Inc., Plastics Division, Dept. 1212, Pittsburgh 19, Pa.

KOPPERS®

There IS something NEW in this BAG!

IT'S DuraBAG

...made from THILCO-TUF

A NON-STAINING BLOND LAMINANT DUPLEX PAPER WHICH . . .

- Does not bleed, stain, offset or delaminate
- Has inherent elasticity, superior strength and puncture resistance
- Resists oil, grease and moisture
- Available in Flat, Creped and Poly-Coated finishes—with or without glass fiber reinforcing

Look what's new in bag packaging! *Dura*-BAG . . . made of THILCO-TUF. And, it offers a brand new dimension to heavy-duty packaging that results in even greater product protection—*full protection*. THILCO-TUF is no ordinary heavy-duty paper, but an exclusive, patented paper combination that features two sturdy kraft outer sheets laminated together with a new "Hot Melt" *Non-Staining* Blond laminant and reinforced with strong, spun glass fibers for extra strength. Ideal for packaging heavyweight products, Dura-BAGS remain intact, where other bags fail. They can be Print-Decorated and are available in flat, pinch bottom and square bottom styles. Standard sizes from 2" x 8⅜" to 5⅜" x 23¼" with intermediate sizes and gussets.

Both Dura-Bag and ordinary protective paper bag containing 50 lb. gears were immersed in water for same length of time.

After thorough soaking, bags were lifted. Dura-Bag (left) retained its strength—remained intact. Bottom of standard bag burst completely open.

Write for Sample Bags and THILCO-TUF Kit—Tells you all about this exclusive Thilco Protective paper.

THILCO

Functional Papers

THILMANY PULP & PAPER COMPANY
KAUKAUNA • WISCONSIN

NEW YORK • CHICAGO • PHILADELPHIA • DETROIT • CINCINNATI • KANSAS CITY

J·E — your first source for plastic packaging

Almost everything looks better — sells faster — in a sparkling plastic container. And J-E, the nation's largest designer-producer of semi-rigid plastic packaging, has **two** distinctive families of plastic containers, each backed by the know-how and the productive capacity which are your guarantee of prompt delivery of a quality product.

Choose any one of many shapes and sizes in pressure-formed FDA-approved styrene containers for fresh and frozen foods, available with snap-in, snap-on or snap-over lids, precision fitted to eliminate adhesives or tapes. Also available with heat seals.

Or choose a fabricated acetate container — the ideal showcase for soft goods, cosmetics, confectionery and paper products.

Best of all — why not write us? We will be glad to send specific technical data as it relates to your product. Or send us your product — our Design Center will return it in its own J-E design-engineered container.

J-E PLASTICS MANUFACTURING CORP. **400 Nepperhan Avenue, Yonkers, New York**

Phone: GR 6-3456

PE-11-61

BIG THINGS...LITTLE

These, and a thousand other things, have found the perfect way to go traveling—comfortably safe in a St. Regis® container. In fact, there's hardly anything you can name for which St. Regis can't design the right corrugated box.

And, if you think we have designs on *your* product—you're right! We make it our business to ask for new opportunities to design boxes that give your product greater protection at lowest cost. You may need "difficult" boxes... boxes with full printing . . . convertible to display units... or boxes that weather the weather. If the box you need doesn't exist, we'll create and test it. And it will be the sturdiest, safest box your product ever traveled in.

You
packag
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can na
anythi

ANYTHING GOES...IN AS

LE THINGS... LIVE THINGS

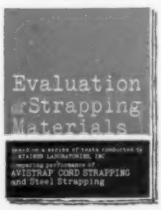
You can step into this imaginative world of protective packaging at any of our nation-wide plants. Each has a staff of creative design engineers, modern production techniques, and years of experience in virtually any industry you can name. Corrugated boxes for big things, little things—*anything*—are designed and made at these St. Regis plants:

Birmingham, Ala. • Fullerton, Calif. • Salinas, Calif. • Jacksonville, Fla. • Atlanta, Ga. • Chicago, Ill. • Dubuque, Ia. • Hagerstown, Md. Minneapolis, Minn. • Jersey City, N.J. • Buffalo, N.Y. • Albany, N.Y. Canton, O. • Cleveland, O. • Coshocton, O. • Newark, O. • Crafton, Pa. • Mt. Wolf, Pa. • Pittsburgh, Pa. • Dallas, Texas • Garland, Texas Houston, Texas • Tacoma, Wash. • Grafton, W.Va. • Milwaukee, Wis.
Or write: Container Div., St. Regis Paper Company, 150 E. 42 St., N.Y. 17, N.Y.

AST. REGIS CONTAINER

SCIENTIFIC PACKAGE SMASHING PROVES AVISTRAP® CAN MATCH STEEL STRAPPING

Container Laboratories, Inc., New York, recognized expert in package research, reports Avistrap® Cord Strapping can match or better the performance of steel strapping in comparable applications. Behind this statement is a carefully-observed series of independent tests, comparing performance of Avistrap in ⅜ in. and ⅝ in. widths with performance of .015 steel strapping in the same widths, in package reinforcement, bundling, and palletizing. A comparison in terms of tensile strength, elongation, and energy required to break was also made. This showed Avistrap's amazing ability to keep on absorbing energy without breaking, long after comparable steel strapping has failed. Container Laboratories, Inc. designed the tests to duplicate actual shipping situations. Packages were dropped on corners and edges, subjected to an incline impact test, and vibrated for hours with a force equal to their own weight. The test program was carried out without any guidance or instructions from American Viscose Corporation.



A summary of test results, as approved by Container Laboratories, Inc., is available on request. Write to Dept. O. Ask for "Evaluation Booklet."

AVISTRAP® CORD STRAPPING

*Patents pending.

AMERICAN VISCOSE CORPORATION, INDUSTRIAL PACKAGING DEPT. O, 1617 PENNSYLVANIA BLVD., PHILA. 3, PA.

District Offices: Atlanta, Ga. • Boston, Mass. • Charlotte, N. C. • Chicago, Ill. • Columbus, Ohio • Dallas, Tex. • Los Angeles, Calif. • New Orleans, La. • New York, N. Y.

For more information circle No. 221 on Reader Service Card

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ESTABLISHED 1887

THE C. F. SAUER COMPANY

SOLE OWNERS AND M'F'R'S
SAUER'S EXTRACTS

DUKE'S MAYONNAISE PRODUCTS

IMPORTERS OF VANILLA BEANS
ETC MFR'S OF SPECIAL BRANDS
EXTRACTS & DRUGS

SAUER'S SPICES

RICHMOND 20, VA.
May 2, 1961

New Jersey Machine Corp.
16th Street & Willow Avenue
Hoboken, New Jersey

Attention Mr. Dave Goddard

Gentlemen:

With reference to your letter of April 27, 1961, concerning the service of your Model 386 front and back Pony Express labeler, please be advised that we have had very satisfactory results in labeling our glass line of spices on this machine. The machine has been utilized in both front and front and back labeling and the registration has been very good.

As far as changeover from one type glass and label to another is concerned, the machine is simple to change and our operators have been very well pleased with the results in changing from one size to the other. We lose very little production time in changing from one size container to the other.

To date, we have run this machine up to 65 jars per minute and have had no unusual troubles. Our operators can change the above machine completely for front and back labeling in approximately 30 minutes. The machine does not require a full time operator since it has a sufficiently large label magazine. An operator should be close at hand to observe the machine and stop same if something along the line jams. This could be eliminated with an automatic control on the infeed to the machine.

Best regards.

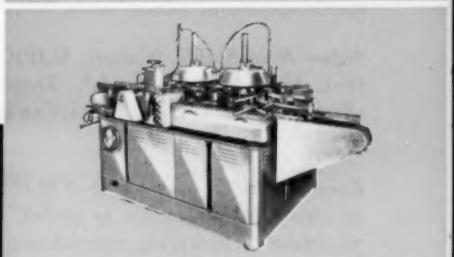
Yours very truly,

THE C. F. SAUER COMPANY

F. F. Jewett

F. F. Jewett
Vice President

FFJ/np



Max. Label Width	4-7/8"	4-1/2"	
Max. Container Dia. or Thickness	4-1/4"	3-3/4"	3-1/2"
Speed	65/min.	75/min.	80/min.

THANKS, MR. JEWETT, FOR YOUR KIND WORDS.
As in Mr. Jewett's case, the accurate register and quick changeover inherent in our double turret Pony Express suction labeler can probably help you, too • Send for information or call our sales engineer.

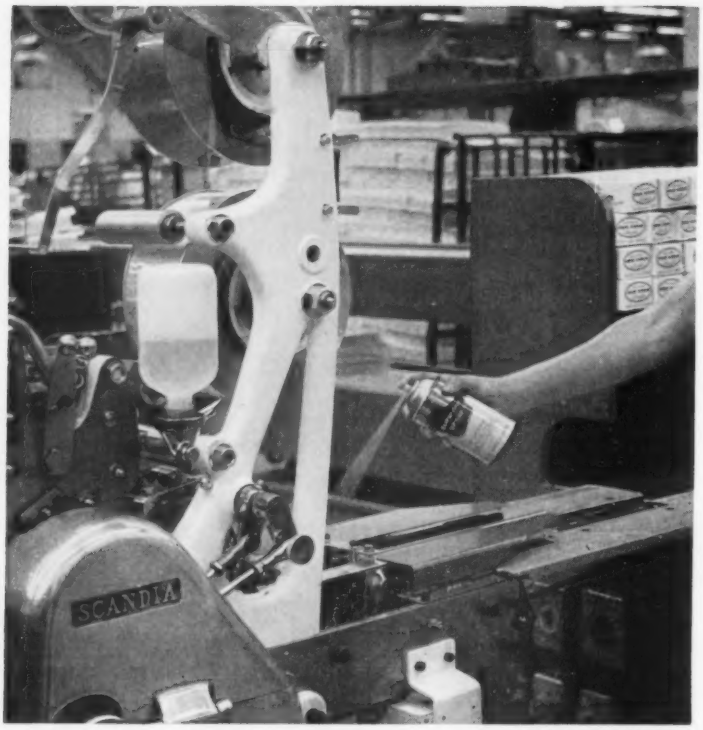
Labeling, Cartoning, Paper Box Machinery

NEW JERSEY MACHINE CORPORATION

MAIN OFFICE AND PLANT • 16TH ST. AND WILLOW AVENUE, HOBOKEN, N. J. • OLDFIELD 3-0483
FACTORY SALES AND SERVICE BRANCHES: 325 W. HURON ST., CHICAGO 10, ILLINOIS, 3500 W. 6TH ST., LOS ANGELES 5, CALIFORNIA

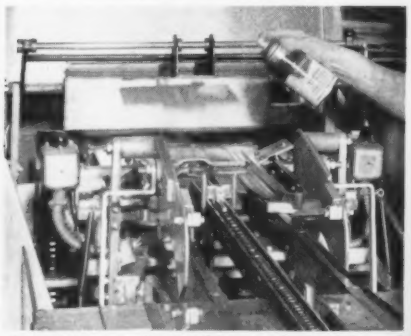
SILICONE NEWS from Dow Corning

Sticking Gets The Slip



COURTESY P. LORILLARD CO.

Applied to heat sealing bars of bread wrapping machine, SLIPICONE increases heat-transmission and film-sealing speed . . . prevents sticking and tearing, browning and ink smear.



Automatic wrapping machines are kept stick-proof and clean with SLIPICONE . . . production flows smoothly, without jam-ups . . . maintenance is minimized.

SLIPICONE Prevents Jam-ups... Keeps Production At Full Clip!

Got a sticking problem? Solve it with SLIPICONE®, the Dow Corning *silicone release agent*. SLIPICONE puts a slick, stick-free surface wherever you want one . . . prevents adhesives, packaging materials and products from sticking to (or piling up on) any surface. Thus, SLIPICONE speeds operations, reduces waste, keeps packages clean . . . *saves money!*

Safe—Heat Stable. Nontoxic SLIPICONE is safe to use in contact with fresh, frozen or baked foods*. Temperature extremes have little or no effect on SLIPICONE . . . it stays on the job — prevents sticking — from 40° below zero to 400° F.

Easy does it! A thin coating of SLIPICONE is all it takes. Simply spray or wipe it on any surface as needed. Get SLIPICONE from your paper wholesaler or packaging materials supplier.

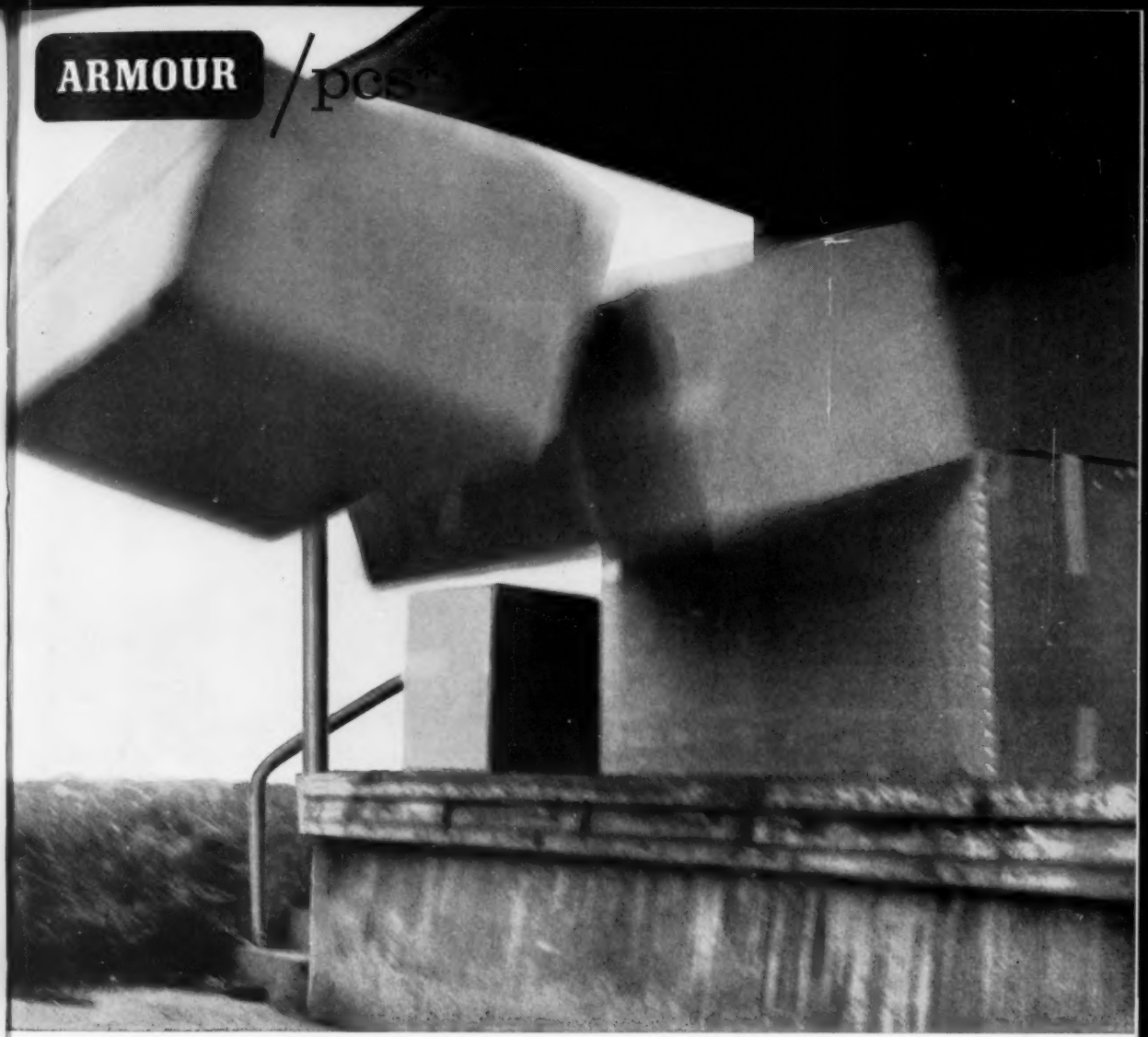
SLIPICONE comes in 2 oz. tube, 8 oz. tube, and 12 oz. aerosol . . . to wipe or spray sticking problems away!

*Write Dow Corning, Dept. 9023, for complete data on use of Slipicone in the food processing industry.

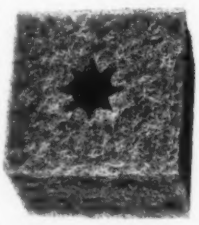
first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN

ARMOUR /pcs*



*protective cushioning service shows you how to cut in-transit damage

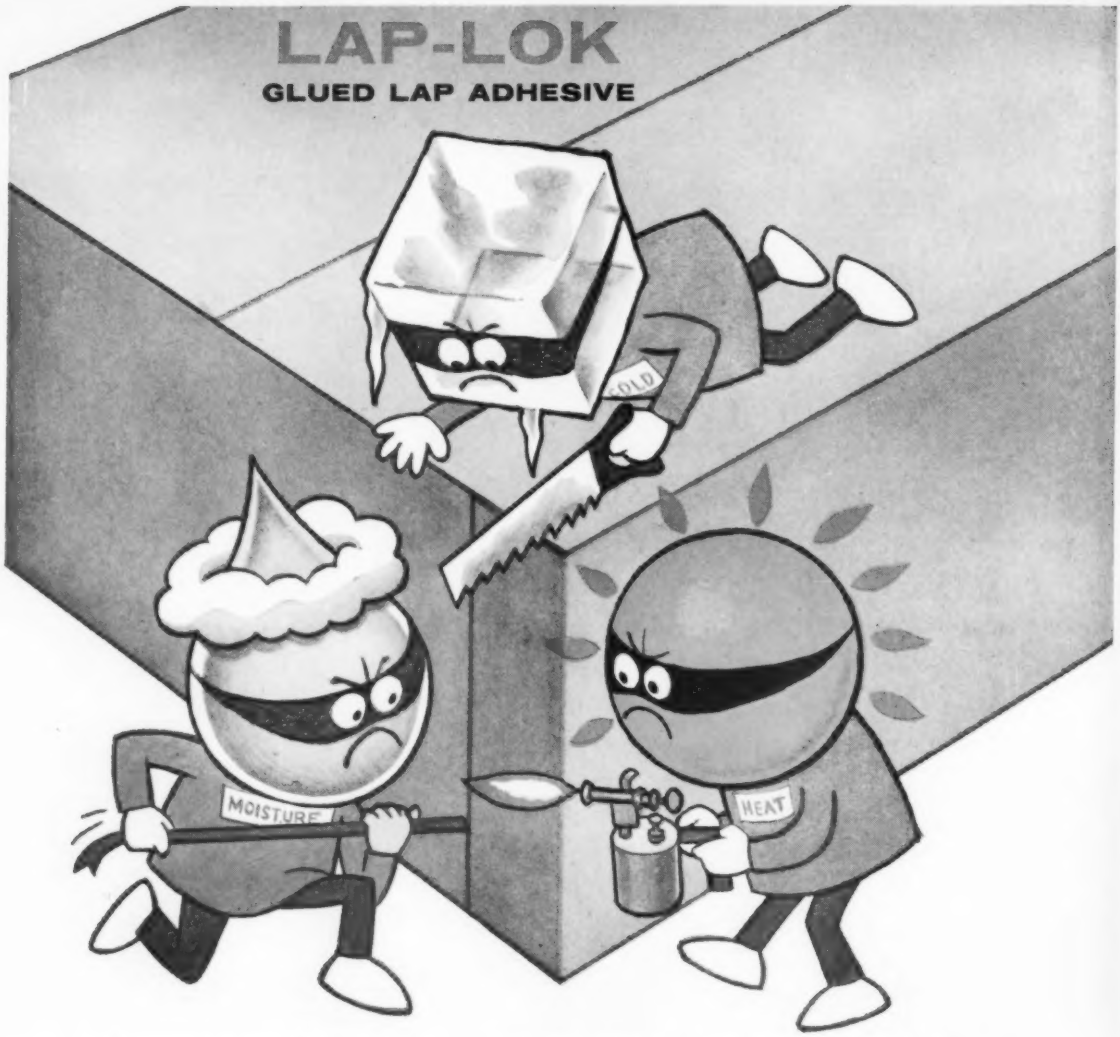


Special Hairflex packs can be fabricated to pillow your product.

Shock. Vibration. Shielding your valuable product against these damaging forces is a job for Armour/pcs. Working with Hairflex—Armour's rubberized curled hair cushioning—expert package engineers carefully calculate your product's cushioning requirement for maximum protection at minimum cost, weight and volume. Then, Armour, with the industry's most modern high speed production facilities, fabricates Hairflex cushioning for you in sheets, laminated packs, die-cuts or molded to the exact profile of your product. You can start reducing in-transit damage by taking advantage of this comprehensive technical service. For your free copy of our brochure describing Hairflex for packaging applications, write to: Cushioning Products Division, 16123 Armour Street, N.E., Alliance, Ohio, or 2001 Saybrook Avenue, Los Angeles, California.

CUSHIONING PRODUCTS DIVISION
ARMOUR ALLIANCE INDUSTRIES

LAP-LOK
GLUED LAP ADHESIVE



WITHSTANDS ALL THE ELEMENTS

Rainy or bone-dry, 140° F. to sub-zero temperatures, LAP-LOK bonds springy flaps safe and tight throughout. Take summer heat in warehouses or boxcars for example:

LAP-LOK withstands ten pounds pull at 140° F. indefinitely when other glued lap adhesives fail in five minutes or less.

LAP-LOK may be used with all lap-gluing machines, any type, any speed. Dries to a colorless, transparent film. Leaves no unsightly squeezeout. No odor. No hazardous flammable solvents.

LAP-LOK is worthwhile insurance against handling and storage losses. It has an unmatched record of over six years' trouble-free usage. Write for details.

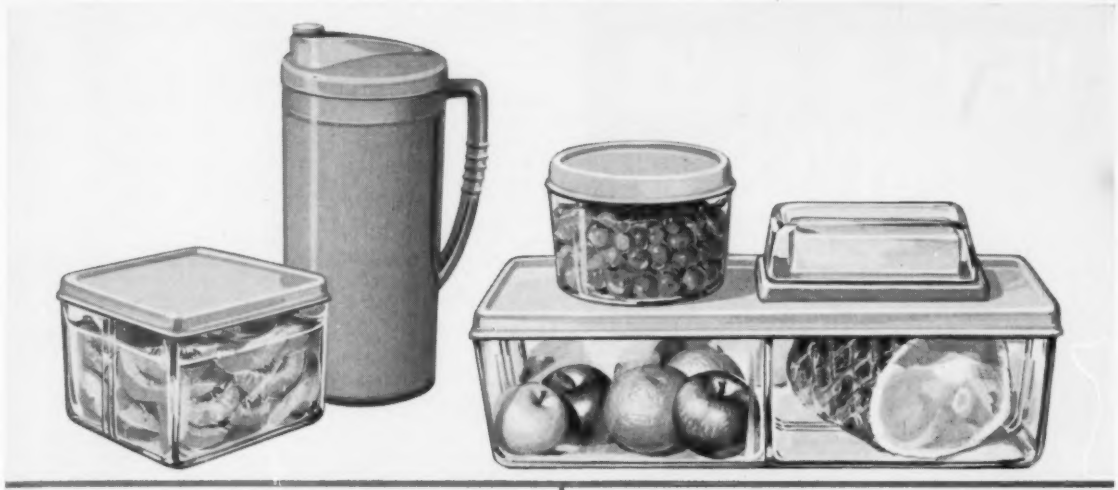
National ADHESIVES

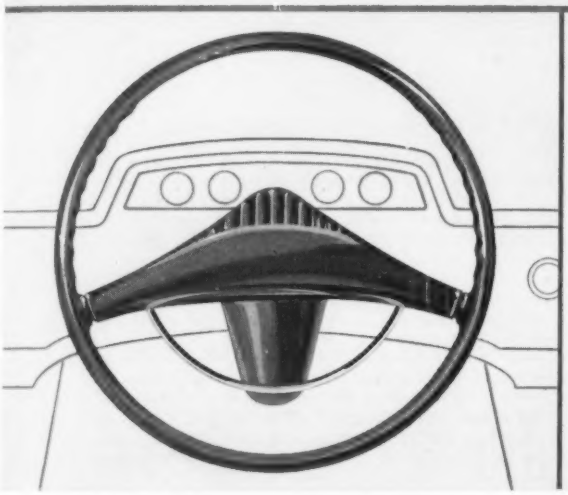
NATIONAL STARCH and CHEMICAL CORPORATION

750 Third Avenue, New York 17 • 3641 So. Washtenaw Avenue, Chicago 32 • 735 Battery Street, San Francisco 11

And All Principal Cities in the United States, Canada, England and Mexico

What's News in Plastics...





Specify Escon® polypropylene for low odor pick-up

Escon has no taste or odor of its own and is highly resistant to stain and odor pick-up. This important property makes Escon an excellent choice for food storage containers and packaging, compacts and lipstick cases—even automobile steering wheels.

Escon polypropylene offers manufacturers a *balanced* combination of properties for high-speed, profitable production—including resistance to dynamic fatigue, high strength, chemical and abrasion resistance, and many more. Expert technical assistance is always available. For full details, write to Enjay, 15 West 51st Street, New York 19, N. Y.

EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

ENJAY CHEMICAL COMPANY

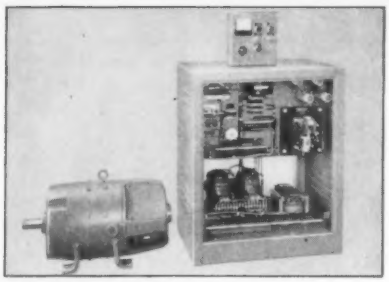
A DIVISION OF HUMBLE OIL & REFINING COMPANY

ENJAY

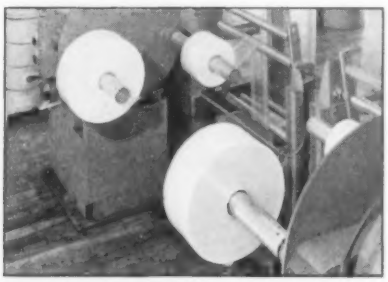
HOBBS VERS-A-WIND DRIVES

with Feed Back Regulation

For Web Winding Applications Requiring a Wide Range of Speed, Controlled Tension and Accuracy



Hobbs Vers-a-wind Drive with Control Panel



The Hobbs Vers-a-wind in use at Turex Plastics Company, Nasonville, Rhode Island.

LITERATURE

The complete line of Hobbs Center-Shaft Web Winding and Unwinding Drives and Hobbs Winding Machines is described and illustrated in "Principles and Practices of Modern Winding". Send for a copy free of all obligations.

TYPE DCS VERS-A-WIND SPEED CONTROL DRIVE

Feedback dancer roll of very light construction operates a transducer which converts mechanical motion to an electrical impulse. This regulates the armature voltage of a DC shunt motor, thus controlling the output speed. Static type control increases reliability and reduces maintenance. Air pressure on dancer roll (which determines the tension) is adjustable. A variation of this type involves varying the field by the feedback principle and varying the armature voltage by a synchronizing tach signal.

Applications are in front of calenders, when rubber and plastic sheeting must be wound under light tension; for windup on any machine where roll weight becomes a large user of the total required torque; when friction in present winding equipment is extremely high; in front of extruders when tremendous speed changes, variable widths and variable diameter buildups are required; when DC power is not available from the process machine to synchronize the winding operation.

TYPE DCT TENSION CONTROL DRIVE

Controls preset tension by controlling the field current with a saturable reactor. Strength of field automatically adjusted to hold armature current constant for any one tension setting. As roll builds up, armature current tries to build up. However, by feedback control, field strength is increased and armature current is held constant at lower r.p.m. Torque output is increased to compensate for increased roll diameter. Maximum constancy of tension over large buildup range. Accuracy of ±2% over 8:1 or even 10:1 buildup. Used when a DC supply is not available from process machine and synchronization is unnecessary. For each change of processing speed, armature control must be adjusted.

TYPE DCTA TENSION CONTROL DRIVE

Similar to Type DCT, but is designed for process machines equipped with DC powered main drive systems, either rotary (M-G sets) or static (rectified). Armature of winding motor may be paralleled to armature of main drive motor for synchronization. Automatic control separately powers the field and provides winding characteristic.

TYPE DCTS TENSION CONTROL DRIVE

Also similar to Type DCT, but designed for process machines without DC main drives where synchronization is required. Armature supply is automatically controlled for synchronization by signal from a tach generator, which produces the winding characteristic.

Types DCT, DCTA and DCTS are recommended in all instances where a dancer roll affects the material adversely or where the ultimate in accuracy of control is desired.

THE HOBBS LINE INCLUDES 5 OTHER TYPES OF DRIVES —

— Standard CHP, NTJ with Synchronization, APF Progressive Friction, Standard HG Unwind and HG Unwind with Synchronization. Descriptive literature on request.

AIR AND MECHANICAL BRAKES

For unwind applications, alternate air or mechanical brakes can be furnished for automatic or manual control of unwind tension.

WINDING ACCESSORIES INCLUDE —

— web guides, castered bases, mandrels, "Center-Loc" core holders, conventional core chucks, special core chucks, and slitting attachments.

ALSO COMPLETE WINDING MACHINES, INCLUDING —

— light, medium and heavy duty single shaft; medium and heavy duty two-shaft staggered; medium and heavy duty three-shaft staggered; medium duty four-shaft staggered; two-shaft cantilevered fixed shaft and turret; light, medium and heavy duty two-shaft turret, heavy duty two-station shaftless turret; light and medium duty four-shaft duplex turret, and heavy duty three-shaft turret. Type of winding drive used is selected on basis of process specifications and application.

HOBBS MANUFACTURING COMPANY

38K Salisbury Street, Worcester 5, Mass.

Representatives in Irvington, N.J., Chicago, Cleveland, Greenville, S.C., Los Angeles, Louisville, Toronto and other principal cities.

EST 1882

WINDERS · HAND & POWER SHEARS · SLITTERS · AUTOMATIC CUTTERS · DIE PRESSES

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How Lord Baltimore helps package 62,000 fish sticks every hour

WHETHER your business is fish sticks or cookies or cosmetics, Lord Baltimore can design a more efficient packaging system for you.

The Dex-O-Pak® system we installed for Gorton's is just one example of how our service extends beyond the creation of award-winning printed cartons. This remarkable system unscrambles and packages 62,000 fish sticks every hour.

For *any* volume product we can design a high-speed packaging system. Our nationwide engineering program includes installation, regular servicing, operational training, and maintenance.

We also offer matched nationwide facilities, including offset lithography, multicolor rotogravure and letterpress. Plus a complete selection of decorative and protective finishes, embossing and other special effects. And we are backed by the complete resources of International Paper's mills and research centers.

All of this can be focused on your packaging problems.

For information, write: 425 Park Ave., N. Y. 22, N. Y., San Mateo, Calif., or 333 N. Michigan Avenue, Chicago, Ill.

Lord Baltimore Press

PLANTS: BALTIMORE, MARYLAND • CLINTON, IOWA • SAN LEANDRO, CALIFORNIA

"WORK HORSES"

When the line runs, capacity counts! Illumitronic Checkweighers . . . Weight Monitors and Classifiers are rugged, accurate, and consistent performers in demanding environmental conditions. These machines are operating with cartons, bags, cans, pouches, tubes, trays, overwraps, blow-mold plastics, and products unsupported by packages. Speeds to 300 units per minute. Accuracy ±1/30th of 1 oz. Weights to 10 lbs. Investigate the economies of *automatically weighing in motion with featherweight accuracy!*

Write — or dial 415, RE 9-2395

illumitronic systems corp.

680 East Taylor Sunnyvale, California

For more information circle No. 229 on Reader Service Card

Circle No. 230 on Card ►

We'll send you one test roll of "V" cellophane, one 4¢ stamp, one sheet of paper, one self-addressed envelope and one pencil.

Run the cellophane off on your own equipment. Or on your converter's. If you don't find that it's the best cellophane ever made for premium baked foods, write us a nasty letter. (It won't even cost you a 4¢ stamp.)

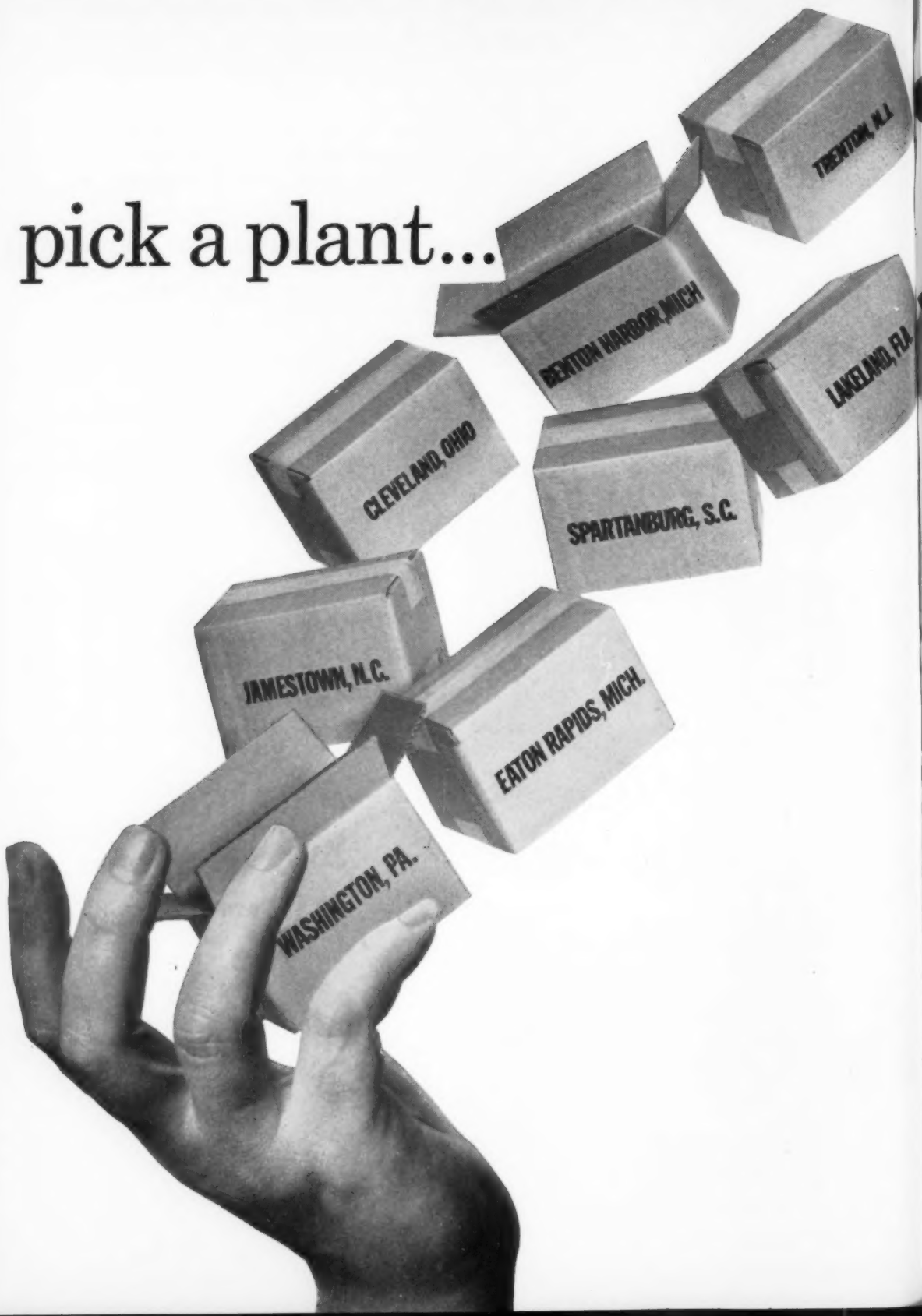
We think you'll find that "V" prints, machines and seals with the bare minimum of production problems. That its shelf appearance has the magic for turning a stray glance into an impulse. And "V's" polymer coating—virtually unaffected by the heat and chemicals of printing—shuts in needed moisture, along with all the tang and savor you've put into your product. It's so good at this, in fact, that we actually believe you'll end up sending us a *complimentary* letter.

But don't do it just to be nice.

Test rolls supplied through any Olin sales representative or your converter in accordance with our usual policy.

PACKAGING DIVISION Olin
Film Operations, 460 Park Avenue, New York 22, N. Y.

pick a plant...


TRENTON, N.J.
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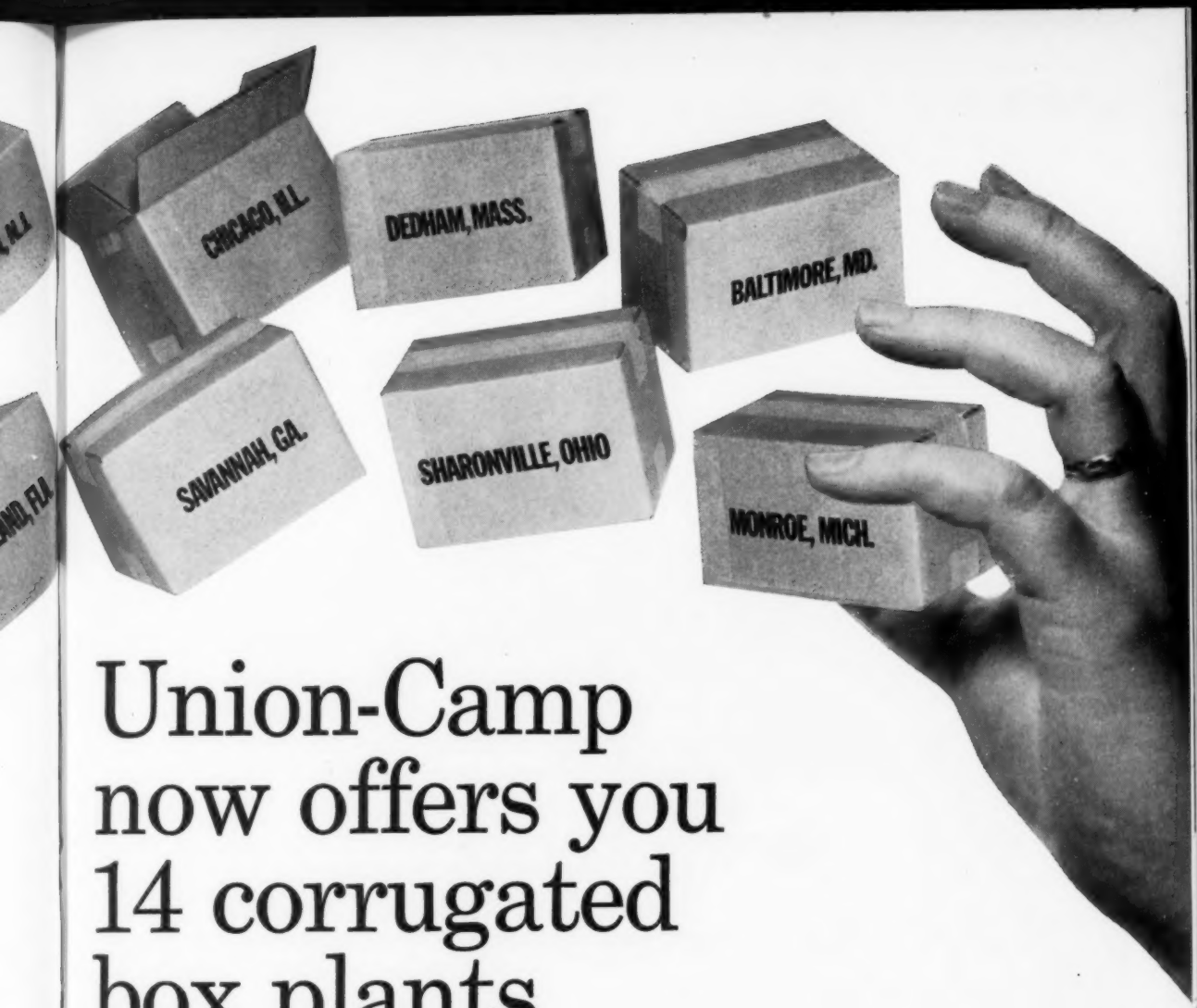


Union-Camp now offers you 14 corrugated box plants

Fast service is no gamble when you deal with Union-Camp. Fourteen corrugated box plants are strategically located to supply all your corrugated packaging needs. Customized local service is combined with a comprehensive packaging evaluation program designed to assist you in specifications analysis, structural design, box testing, materials handling and graphic design.

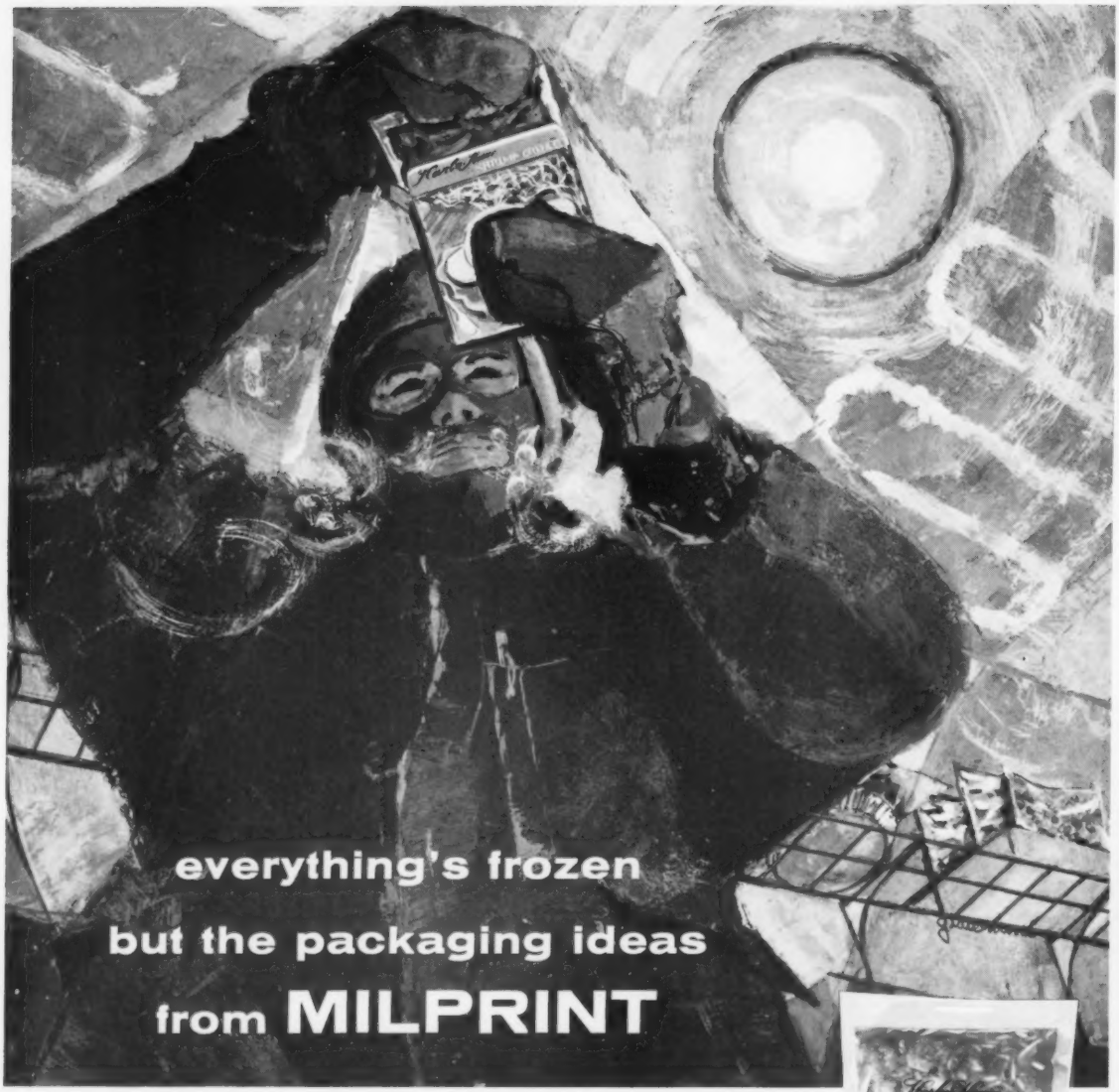
Important reasons why more and more companies are turning to Union-Camp for creative help in packaging.

UNION-CAMP®
CORRUGATED BOXES
Union Bag-Camp Paper Corporation · 233 Broadway N.Y. 7, N.Y.

Plants:

*Dedham, Mass.; Allied Container Corp., Route 128, Allied Drive
Trenton, New Jersey; 1400 E. State St.
†Washington, Penna.; P. O. Box 285
†Cleveland, Ohio; 10200 Miles Ave.
†Sharonville, Ohio; P. O. Box 86
Chicago, Ill.; 4545 West Palmer
†Benton Harbor, Mich.; 11th St. & Britain Ave.
†Monroe, Mich.; 1109 East Elm Ave.
†Eaton Rapids, Mich.; P. O. Box 8
*Baltimore, Md.; Eastern Box Co.; Wagner's Point
Jamestown, N. C.; 3704 Point Pleasant Rd.
Spartanburg, S. C.; P. O. Box 1965
Savannah, Georgia; P. O. Box 570
Lakeland, Florida; P. O. Box 454

*Subsidiary Companies †River Raisin Division



Now...a boil-in-pouch that works! From Milprint's dynamic research comes the first completely successful pouch for the fast-growing boil-in package field: new KETTLE-REDI pouches by Milprint!

Kettle-Redi's superior lamination stands up under temperature extremes from boiling to 50° below without cracking or leaking . . . remains unaffected by any combination of thermal and chemical factors . . . resists scuffing and tearing . . . offers excellent machineability plus exclusive "locked in" reverse printing that defies age or handling — lifelike flexographic or rotogravure printing that stays better looking at the point of sale!

Call Milprint now for information on Kettle-Redi pouches for cook-in applications!

MILPRINT PACKAGING *gives your product* MARKETING POWER

KETTLE-REDI is a Milprint trademark.

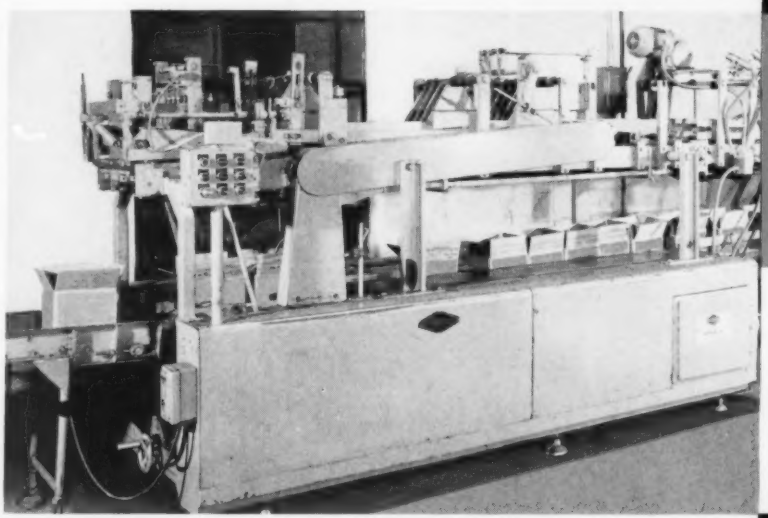
Milprint, Inc. General Offices, Milwaukee, Wis. Sales Offices and plants conveniently located across the nation.

DISCOVER THE

Versatility

OF ATKRON DUMORE

CASE PACKERS



... as did Fischer-Spiegel, Inc., Geneva, Ohio, when they investigated casing equipment for the widely divergent packages illustrated. As a result, the single Atkron-Dumore Case Packer shown is today casing its full production of these packs with only one operator and with only minutes between runs for changeover.

Completely automatic, Atkron-Dumore Case Packers are available in six basic models to match any line speed up to 50 cases per minute with quickly interchangeable packing heads for bottles, cans, jars and wrap-around packs; in full-depth and half-depth return cases, shipper trays and flapped shipping cartons; in single and double layers.

Whatever your casing problem, it will pay you to investigate Atkron-Dumore equipment. Call or write today for an in-plant survey of your requirements.

ATKRON, Inc.

P. O. BOX 311 • CUYAHOGA FALLS, OHIO

Distributed and serviced exclusively by:

WORLD

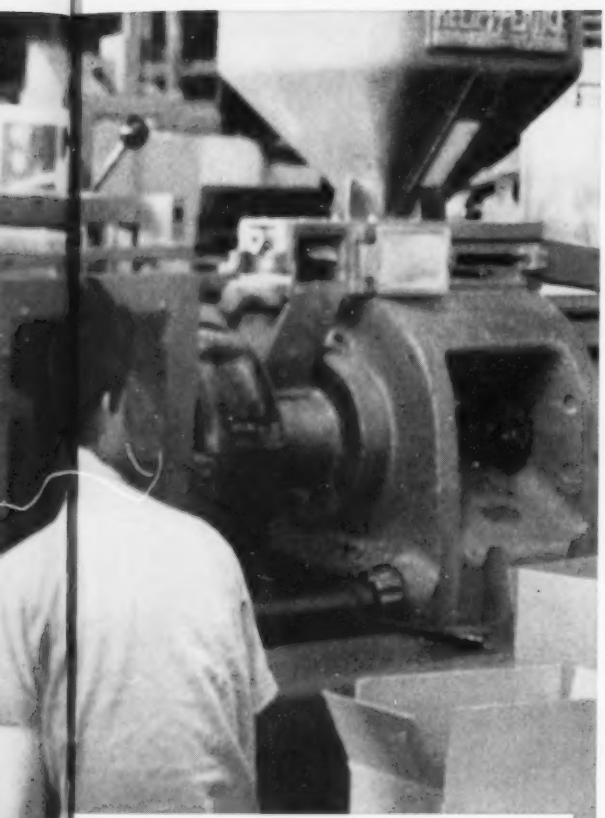
ECONOMIC MACHINERY COMPANY, WORCESTER 3, MASS.
DIVISION OF GEO. J. MEYER MANUFACTURING CO.

AT-1061-73

"Excellent protection a
packing liners made o

Each p
a cart
stems.
the ca

a much lower cost with Monsanto Polyethylene"



Each polyethylene liner, which has been inserted in a carton, is filled with 5,000 molded eyedropper stems. The liner opening is then twisted shut—and the carton sealed ready for storage and shipment.

"It is essential that the Murine eyedropper stems which we mold be protected from dust, dirt and damage during storage and shipment," reports Mr. Peter Kennedy, plant manager of Fedco Corporation, Chicago, Illinois. "By using polyethylene carton liners, we meet these requirements—and cut our package cost by ⅓ because of materials and labor savings. The polyethylene liners are inserted in a carton and filled with 5,000 molded stem units. The liner opening is twisted shut, sealing out dust and impurities during shipment and storage. Another advantage of the liner is recloseability. Partial contents can be taken out and the liner reclosed to protect remaining material."

Why was Monsanto Polyethylene 706 resin chosen for these liners? "We need a tough film of high impact strength to resist possible puncture. The film must also have good heat sealing properties. Monsanto 706 offers us these features," explained Mr. Robert L. Stahl of Plastic Packaging Co., Chicago, Illinois who manufacture the liners for Fedco.

For more information on MPE 706, and a list of industrial package film fabricators, write to Monsanto Chemical Company, Plastics Division, Springfield 2, Massachusetts.

Monsanto

MONSANTO DEVELOPER IN **PLASTICS**

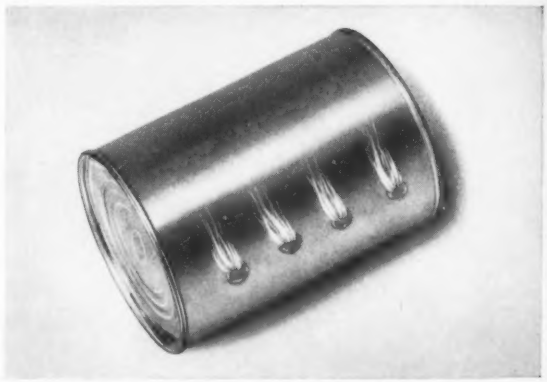
4 COMMON PROBLEMS IN LABELING CANS

(and how the Arabol man helps you solve them)

1. THE LAP ENDS WRINKLE—This usually means that the varnished or foil side is drying at a different rate from the adhesive coated side. If your label stock has changed in some way, the Arabol man can straighten things out with a special, non-wrinkling adhesive. If spotty application is to blame, he may simply suggest a machine adjustment.

2. THE LAP ENDS WON'T HOLD—This may happen in your plant, or (worse luck) on the customer's shelf. One common cause is a change in the label stock, calling for an adjustment in your adhesive formula. Or perhaps the varnish has been carried over too far, leaving no selvage for the adhesive to grab onto. If so, a solvent-type adhesive is indicated. The Arabol man will know.

3. THE LABEL SHOWS "STRIKE THROUGH"—The difference in heat between the can and the adhesive may trigger a reaction which causes the adhesive to stain through the label. You may need a *harder* pick-up gum. Another possibility—a can has burst in the retort, spraying other cans around it with stain-producing material. The Arabol man will check every angle.



4. THE ADHESIVE "STRINGS"— Should your pick-up adhesive cool, it will thicken and "string" out from the roller. This usually happens when the thermostat on the machine fails to compensate for a temperature drop in the surrounding work area. Whatever the cause, it will pay you to get the Arabol man's advice.

INCREASE YOUR ADHESIVE KNOW-HOW . . . Read our informative quarterly bulletin, the Arabol Adhesive Advisor, filled with facts, news and views on the adhesives industry. It offers valuable time and money-saving tips, culled from Arabol's 76 years of adhesive experience. Write on your letterhead to: Editor, Arabol Adhesive Advisor, 110 East 42nd Street, New York 17, N. Y. There will be no charge, of course.

ARABOL ADHESIVES

14 PLANTS AND WAREHOUSES TO SERVE YOU ON A LOCAL BASIS

THE ARABOL MFG. CO., 110 EAST 42ND STREET, NEW YORK 17, N. Y. • CHICAGO • SAN FRANCISCO
LOS ANGELES • ST. LOUIS • ATLANTA • PHILADELPHIA • BOSTON • PORTLAND, ORE. • ITASCA AND
McALLEN, TEX. • CINCINNATI • DENVER • TAMPA • LONDON, ENG.

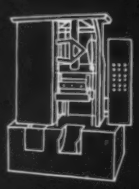
For more information circle No. 234 on Reader Service Card

Circle No. 235 on Card ►

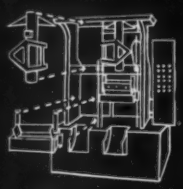
Packaging Equipment News from HAYSSEN

the new Hayssen EXPAND-O-MATIC

solves problems of increasing bag making and filling production

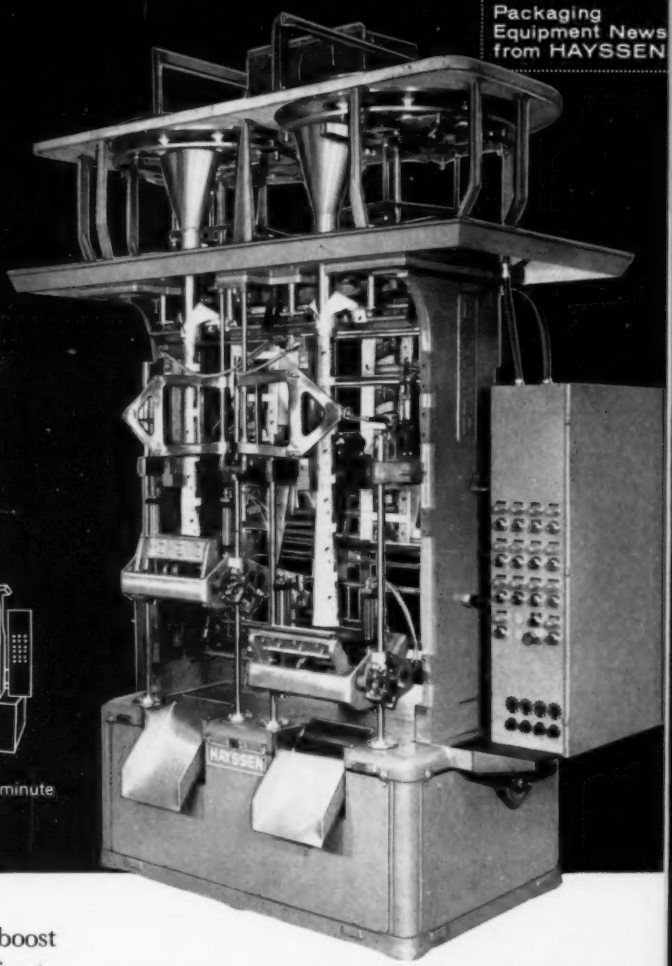


50 bags per minute



Add conversion equipment which costs only 33% of the basic machine.

200 bags per minute



With an EXPAND-O-MATIC you can boost production from 50 to 200 bags per minute

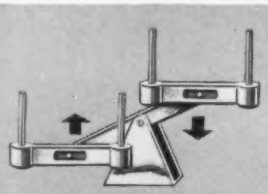
With the new Hayssen EXPAND-O-MATIC, you buy only the production capacity you need to meet your present packaging requirements. As your needs increase, you can quickly, easily and economically add on to a basic EXPAND-O-MATIC machine and double, triple, even quadruple its production — at a fraction of the cost of the basic machine. EXPAND-O-MATICS range from single tube models with production rates to 50 bags per min. to double tube models with production rates of up to 200 bags per min. Each machine packages a wide variety of products in all types of heat sealable papers, films and foils and is available with a choice of dependable Hayssen machine mounted scale, auger, pump or volumetric feeds.

Investigate the many outstanding features of the new Hayssen EXPAND-O-MATIC — the bag form, fill, seal machine that can grow with your production needs. Check the yellow pages for your local distributor or write for descriptive literature.

Exclusively Manufacturers of Packaging Machines Since 1910

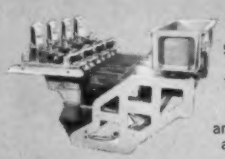
HAYSSEN

MANUFACTURING COMPANY • SHEBOYGAN, WISCONSIN

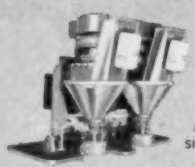


NEW DRIVE MECHANISM

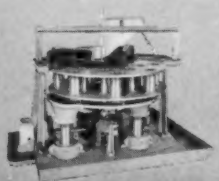
Heart of the EXPAND-O-MATIC packaging machine is a drive mechanism that's based on an entirely new design concept — the drive motor powers a rocker arm which in turn raises and lowers two draw bars. The weight of one draw bar is used to counterbalance the other draw bar.



SCALE FEED handles an almost unlimited variety of free-flowing solid products. Available in combinations of multiple heads, single and double bucket operation and dribble and bulk feeds.



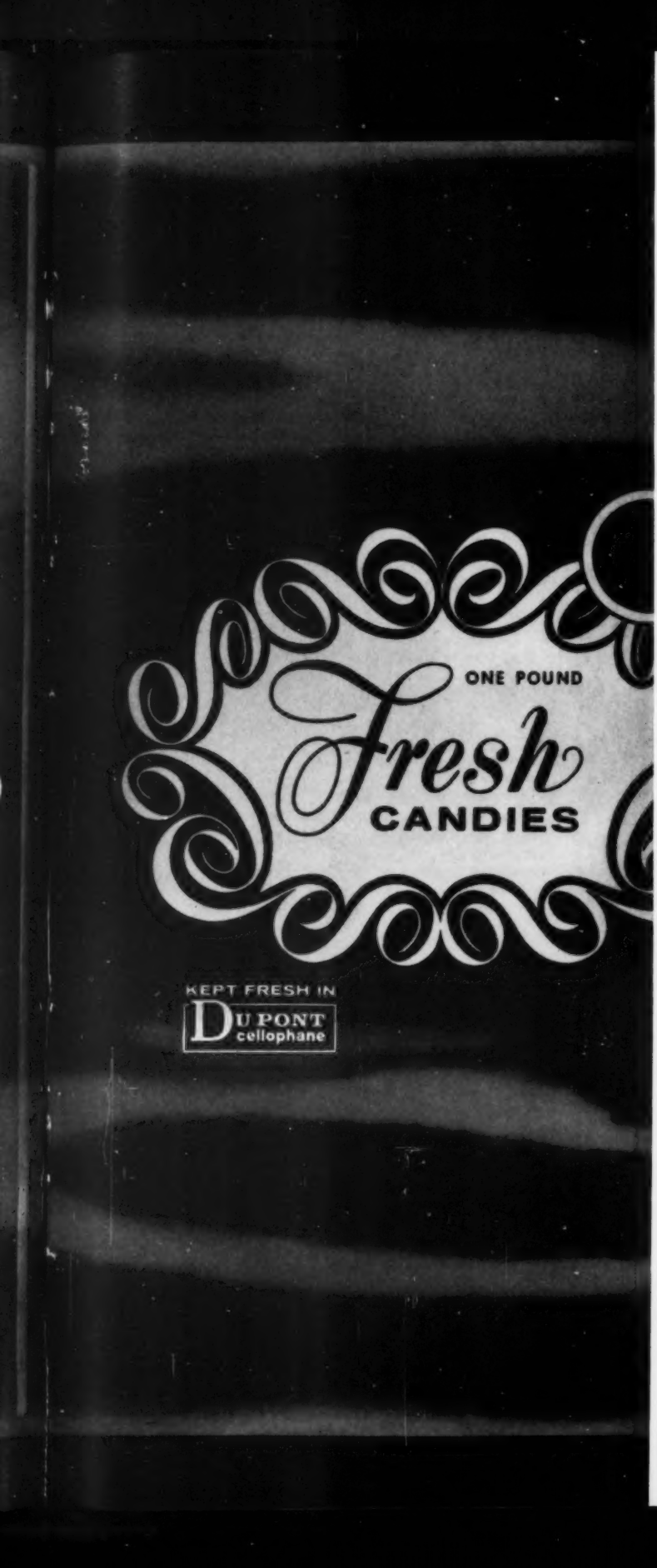
AUGER FEED design for non free-flowing products combines extremely accurate measurement and high operating speed with unusual simplicity of adjustment.



VOLUMETRIC FEED design provides high speed operation, accurate measurement and simple, quick adjustment.

LIQUID PUMP FEED meters all forms of liquid and suspended products regardless of viscosity. Non-dripping valves of the Hayssen pumps assure product free package seals.

RIGHT HERE
Du Pont cellophane starts to make money for you
ONE POUND
Fresh
CANDIES
KEPT FRESH
DU PONT
cellophane



New Du Pont cellophanes give more film per pound–faster seals than ever before

Now—more cellophane per dollar: Some Du Pont cellophanes have been modified to yield as much as 4,000 more square inches per pound, at no increase in price. This higher yield means you get more packaging for every dollar spent—and savings of up to 16%.

Now—lower sealing temperatures: Du Pont's MSD cellophanes now heat-seal at temperatures 50° lower than before. This means your packages spend less time on heating plates, there's less drag, and you get neater, tighter seals. Result: a trouble-free packaging line—and lower packaging costs for you.

Every dollar saved in packaging is worth $20...$30...$40 in extra sales. That's why the efficiency of Du Pont cellophanes is *so* important to your business.

Ask your Du Pont Representative or Authorized Converter to calculate how much *you* can save with these two improvements in cellophane. Or write Film Dept., Du Pont Company, Wilmington 98, Delaware.

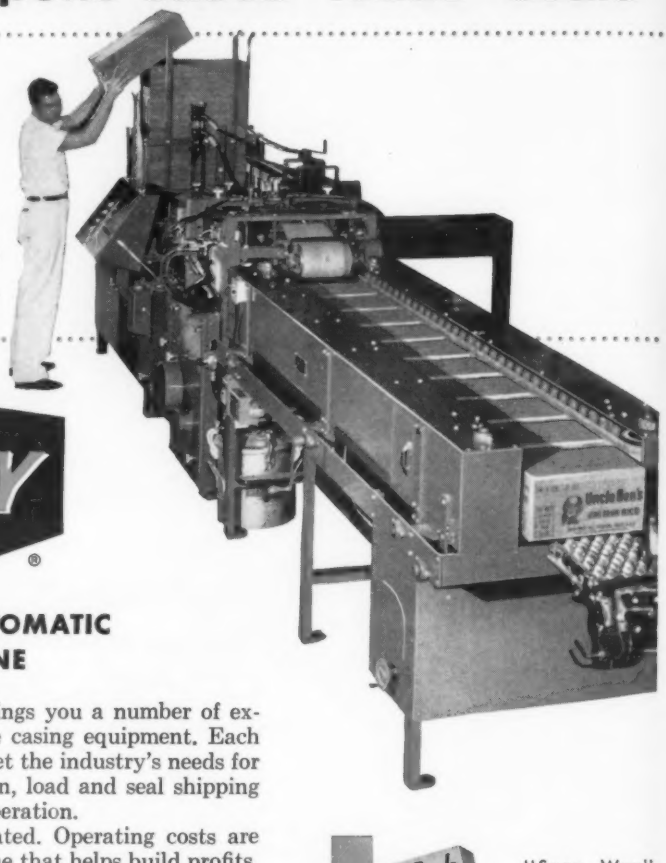
DU PONT
REG. U.S. PAT. OFF.

Better Things for Better Living
...through Chemistry

Circle No. 236 on Card

Automatically opens cases—loads—seals

smooth
sure
—up to 25
cases a minute



SURE-WAY®

MODEL M-41 FULLY AUTOMATIC INTEGRATED CASING LINE

The Model M-41 "Sure-Way" brings you a number of exclusive features in fully automatic package casing equipment. Each of these features is carefully designed to meet the industry's needs for a fully *automatic* machine to erect, position, load and seal shipping cases in a continuous high-speed, in-line operation.

Shut downs and bottlenecks are eliminated. Operating costs are reduced. To sum it all up, here is the machine that helps build profits. Here are a few of the major features:

The new shipping case feeding and erecting mechanism employs duplex vacuum cups which are cam activated, stripping the bottom case from the vertical stack of 125 or more flat shipping cases.

New pressurized gluing system, incorporating "No case-No glue" device, gives greater uniformity of glue application, cuts maintenance and cleanup time. Intermittent motion of the compression unit allows maximum dwell time in minimum floor space – the average unit is less than 29′ long, overall.

Complete console station centralizes all control of the machine, ensuring a smooth uninterrupted operation. Safety interlock switches throughout provide sure, positive functioning. Write for full information or call your nearest FMC representative.

The automatic case erecting-positioning assembly and the sealing-compressing assembly are available separately for existing installations of "Sure-Way" Casers.

"Sure-Way" Model M-41 integrated casing lines are operating in several leading plants. Shown here is one of two complete lines at the Houston plant of Uncle Ben's, Inc. Others already installed, or scheduled for early delivery, will be handling a wide variety of packaged products such as aluminum foil, cake mixes, sugar, soap and detergents. There is virtually no limit to the range of packages, patterns, case sizes and casing combinations the "Sure-Way" can handle.

Putting Ideas to Work

fmc FOOD MACHINERY AND CHEMICAL CORPORATION®

FOOD MACHINERY AND CHEMICAL CORPORATION
Sure-Way Caser Equipment
Distributed Exclusively by FMC
General Sales Offices:
FMC PACKAGING MACHINERY DIVISION: 4900 Summerdale Ave., Philadelphia, Pa.
CANNING MACHINERY DIVISION: Hoopeston, Ill., San Jose, Calif.

U.S.I. POLYETHYLENE NEWS

A series of advertisements for plastics and packaging executives by the makers of PETROTHENE® polyethylene resins

NOVEMBER, 1961 — U. S. Industrial Chemicals Co., Division of National Distillers and Chemical Corporation — 99 Park Ave., N. Y. 16, N. Y.

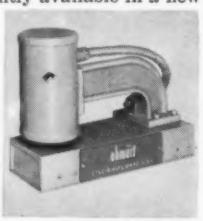
Packaging Notes

Laundry-grade polyethylene film is offered along with a choice of two sealing

units and a promotional kit to spur sales. This ultra-clear customized wrap, designed to replace kraft paper, boxes or cellophane, provides such advantages as: fast, foolproof inspection; increased sales appeal; all-weather protection.

CIRCLE ③ ON COUPON

Nuclear thickness gauge using beta radiation is currently available in a new small size. Measuring only 22 inches long and believed to be the simplest of its type, it will indicate or record thicknesses of sheet materials up to 12 inches wide. Unit is described as "relatively inexpensive . . . extremely useful in the laboratory determination of thickness or density of plastic films, paper, coated materials, and metal foils."

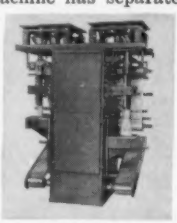


CIRCLE ④ ON COUPON

Diet bar, a new baked dietary food product, is packaged in carbon-dioxide atmosphere in a foil-and-polyethylene wrapper. Standard flavors are chocolate, lemon and spice. Three bars daily reportedly provide 1,248 calories.

CIRCLE ⑤ ON COUPON

New "form and fill" machine packages candies and IQF foods in polyethylene at speeds up to 150 units per minute. This double-tube machine has separate drives, permitting either of the two tubes to be operated independently of the other. It produces packages ranging in size from 2" x 3" to 8" x 14¼" and handles polyethylene film or polyethylene coated substrates.



CIRCLE ⑥ ON COUPON

In-Plant Polyethylene Packaging Racks Up New Gains

Major Savings Reported by Many Manufacturers

In today's tight economy, when opportunity for saving knocks, industry is quick to respond. Consider in-plant polyethylene packaging and the reasons why it's making new inroads in almost every area of industry.

- Polyethylene film offers a price saving over other transparent packaging materials.
- The current availability of inexpensive, semi-automatic packaging equipment — which uses slit roll stock instead of ready-made bags — makes it more of a bargain than ever.
- More and more, customers indicate a preference for products neatly wrapped in strong, clear polyethylene film.

Typical of low-cost machinery using slit roll stock are the M•A packaging systems. They form bags around products at rates up to 30 per min.; are available with shrink tunnels, other accessories, such as hole punchers for rack packaging and slit perforators for easy package opening.

Some Case Histories

In-plant polyethylene packaging almost invariably results in major savings. Look how installing M•A packaging equipment paid off for manufacturers of:

Frozen steaks — Output tripled, sales rose 50%.

Paper Products — "Produced more secure and durable packages at one-half the cost of another transparent film."

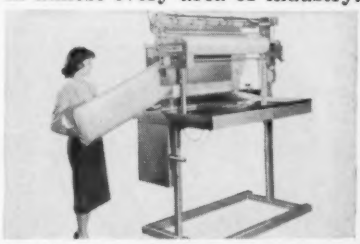
Sportswear — "Virtually sold itself."

Diesel filters — Multiple unit cartons replaced by individual packages. Anticipated savings: 50%.

Shirts — Efficiency of packaging operation quadrupled.

Frozen chickens — Less spoilage, more sales when individually shrink-packaged.

Pizzas and tortillas — Packaging rate doubled, costs cut 33⅓%.



M•A "Jumbo" provides one-step packaging of extra-large items. A manufacturer currently using it to wrap bolts of cloth says installation made possible "tremendous labor savings, cleaner delivery, added sales appeal."

Bread — Specialty loaves stayed fresh 20% longer than in paper bags.

Magazines — Bagged and sealed at rate of 1,000 per hour. Labor, materials, mailing costs cut up to 50%.

Candy — Peppermint canes, licorice sticks wrapped at two-thirds cost of using another transparent film. Open-face boxes shrink-packaged.

Toys — Packaging rate doubled. Now 6-8,000 per day.

On View at PMMI Show

Visitors to the Packaging Manufacturers' Institute Show, Cobo Hall, Detroit, November 7-10, will be able to see the advantages afforded by in-plant polyethylene packaging first hand. M•A models using slit film tubing made from U.S.I. PETROTHENE resins will be demonstrated in Booth 760.

CIRCLE ① ON COUPON

Polyethylene Window Posters Fold Down to Envelope Size

Open — it's a colorful 3' x 3' sign ready for posting; closed — it fits into a 10" x 12" envelope. And, because it's of lightweight flexible polyethylene film, this window display piece can be mailed without stiffener at very low cost. A New Jersey firm designs and produces the small billboards in sizes up to 72" x 72".

CIRCLE ② ON COUPON

WANT MORE INFORMATION

. . . on items mentioned in Polyethylene News? Just circle key no. of developments in which you're interested and mail to U.S.I. Polyethylene News, U.S. Industrial Chemicals Co., 99 Park Avenue, New York 16, N. Y.

1 2 3 4 5 6

NAME _____

FIRM _____

ADDRESS _____

CITY _____ ZONE _____

STATE _____

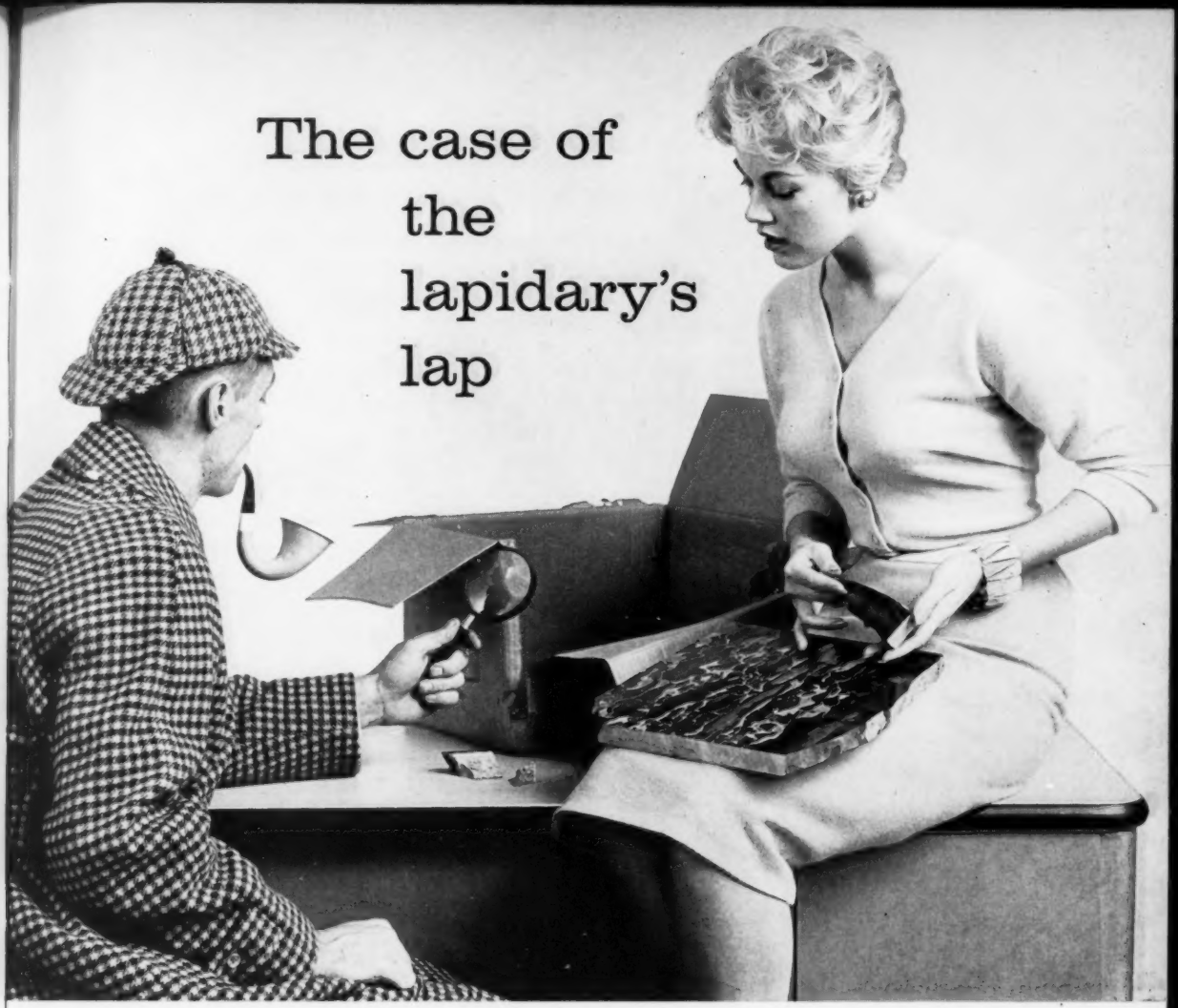
NPK

WHICH ONE COMES FROM FIBREBOARD?

Which carton was created by a team of beverage specialists — including designers and draftsmen, salesmen and scientists? Which carton comes from the company where every major industry is covered the same, sensible way: by teams of experts in that specific field? Which carton, in short, comes from Fibreboard? Your customers can pick it out—and do.

The carton from Fibreboard is Fibresix... the brand-new home for beer that offers more display area (in the end panels where it is needed!), ships safer, cuts packaging costs. Shouldn't your cartons come from this kind of company? Write: Fibreboard Paper Products Corporation, 475 Brannan Street, San Francisco. (Also New York, Chicago, Los Angeles, other major cities.)

The case of the lapidary's lap



FEARLESS FULLER: What do you know about laps, Miss Watson?

MISS WATSON: Well, I've sat on quite a few.

FEARLESS FULLER: I'm referring to glued laps used on corrugated boxes, not men's laps, Miss Watson.

MISS WATSON: I suppose this has something to do with your latest case.

FEARLESS FULLER: Yes, I call it the case of the lapidary's lap.

MISS WATSON: What's a lapidary, Fearless?

FEARLESS FULLER: He's a person who deals in precious and semi-precious stones.

MISS WATSON: Pray tell, what happened to the lapidary's lap?

FEARLESS FULLER: Well, it seems he was sending some finely-polished agate to a customer and shipped it in this corrugated box.

MISS WATSON: And . . . ?

FEARLESS FULLER: Well, the lap adhesive was not Fuller's and the box came apart at the seams. Naturally the polished agate fell to the floor and ruined the lapidary's work.

MISS WATSON: I imagine he was disenchanted with his box maker after this occurred.

FEARLESS FULLER: He was ready to stone him to death.

MISS WATSON: How did you solve the problem, Fearless?

FEARLESS FULLER: I recommended that the box maker switch to Fuller's Adhesive #565, the finest glued lap adhesive around, and the problem was solved.

MISS WATSON: Oh, Fearless, you're amazing.

FEARLESS FULLER: Elementary, my dear Miss Watson. A Fuller man always knows the solution to adhesive problems.

Your Fuller man is ready with the correct solutions on any adhesive problems for you, too. Contact your near by plant.

H. B. Fuller Co.

INDUSTRIAL ADHESIVES

St. Paul, Minnesota

St. Paul, Minn. • Atlanta, Ga. • Buffalo, N.Y. • Chicago, Ill. • Cincinnati, Ohio Dallas, Tex. • Kansas City, Mo. • Linden, N.J. • Los Angeles, Calif. • Memphis, Tenn. • Portland, Ore. • So. San Francisco, Calif. • Tampa, Fla. Also Winnipeg, Can. • Fuller Adhesives International, Nassau, Bahamas

your GAYLORD man is well-rounded in packaging

He has a quick, accurate answer to any question on corrugated packaging, from the design to the delivery of your product.

He makes it his business to understand every phase of packaging operations—box-making, printing, filling, closure, handling, shipping . . . the works. This way he makes sure your Gaylord containers perform most effectively and economically

Ask him one question or a dozen; he's as near as your telephone, right now.

CROWN ZELLERBACH CORPORATION
GAYLORD CONTAINER DIVISION

IN CANADA · CROWN ZELLERBACH CANADA, LTD. VANCOUVER, B. C.

HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

For more information circle No. 240 on Reader Service Card

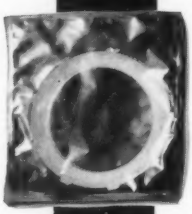
Two new ways to
package purity:
Breck picked METALAM®
for greater impact
at the point of sale.
Stanley Home Products
picked DURAFILM to
emphasize the
purity of Aquilaun
as well as their
Bubble Bath and Shampoo.
Let creative packaging
ideas make key
sales points for you.

packages for performance

DOBECKMUN

Packaging ideas with more persuasive point and purpose—that's the vital extra ingredient that you always get from Dobeckmun. By applying creative ideas to METALAM—a lamination of aluminum foils, to films and papers—Dobeckmun creates vital sales impact while protecting food, cosmetics, and even precious medicines from air, light and moisture. DURAFILM is different! It lets purity shine through, yet this same tough, durable, moistureproof film helps to sell cheese, meat and even hardware! Find out more from your local representative or write to THE DOBECKMUN COMPANY, A Division of The Dow Chemical Company, Cleveland 1, Ohio • Berkeley 10, California • Offices in most principal cities.

For military specs or commercial packaging



Sundstrand Model 50-A Packmaster handles both classes of work . . . can be quickly changed over *without* special modifications

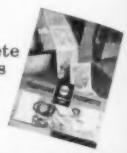
Here's a machine that enables you to meet both military and commercial packaging specifications with a minimum of delay and expense. Changeover to a new web stock, package size, or both, is easily accomplished by the machine operator *in just 15 minutes.*

Sealing dies feature a wide range of temperature and pressure adjustments to suit a variety of heat-sealable web stock papers, foils, laminates, and films including Mil Spec Types 1 and 2.

Packages ranging from 2″ to 8″ wide and 2″ to 16″ long can be produced at rates up to 9000 per hour, depending on package size. They may be transparent or opaque both sides, or transparent one side and opaque the other — with *plain or scrrated web seals.* These completely airtight packages assure perfect protection for both hard and soft goods.

Automatic package feed-out and cutoff are standard. Optional slitting, perforating and printing attachment, and manual and/or automatic loading arrangements are also available.

Write for new 50-A bulletin today. For complete recommendations, describe your requirements and submit samples.

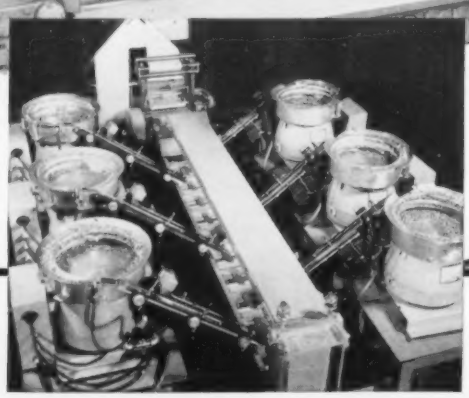


MARK OF SUNDSTRAND RELY-ABILITY

SUNDSTRAND PACKAGING EQUIPMENT

SUNDSTRAND-AMERICAN BROACH • ANN ARBOR, MICH.

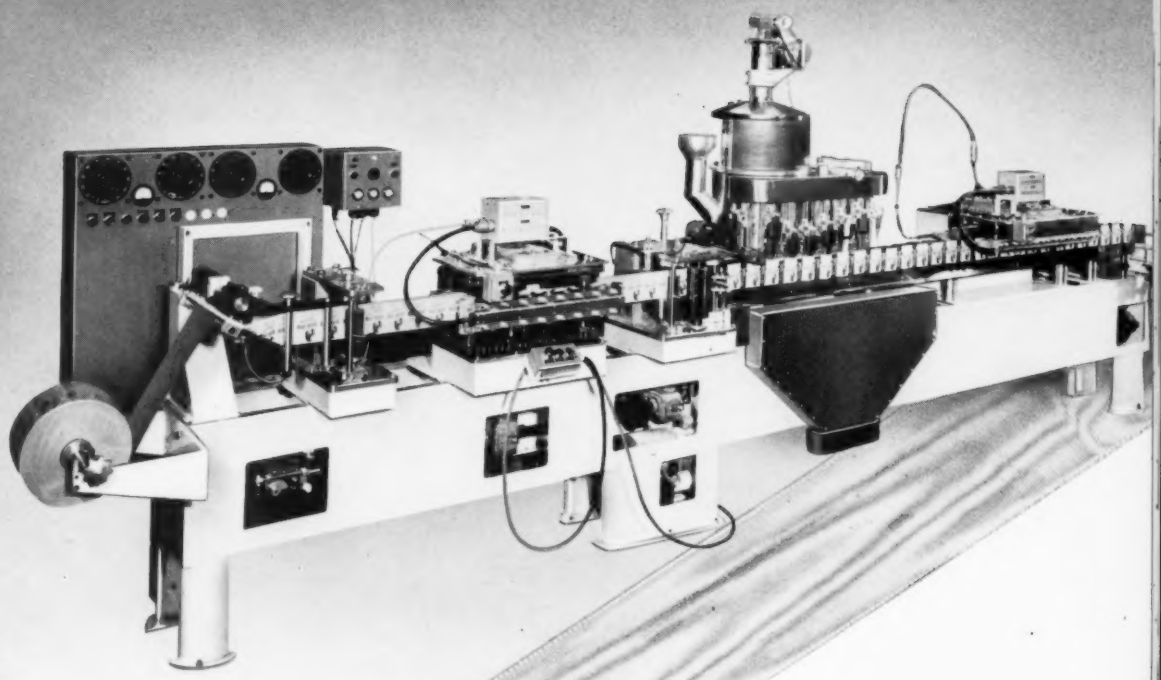
Division of SUNDSTRAND CORPORATION



AUTOMATIC HOPPER FEEDERS can be added to provide accurate counting and faster loading of nuts, bolts, screws, washers, etc., in individual packages or kits.

Riegel

Creative Climate for Tomorrow's Packaging



500 pouches per minute . . . perfectly formed, filled and sealed! That's the amazing capability of this new machine by Bartelt Engineering Company, a Riegel subsidiary. The fastest known pouch former, the Bartelt Continuous Motion Packager has a gentle action that frees web and machine alike of stop and start stresses. This maintains strength and barrier properties of the packaging material, and adds to the life and reliability of the machine.

Packaging that solves problems is a Riegel tradition. Whether you need greater packaging machine efficiency . . . or eye-stopping sales appeal . . . or quality-protection for food products . . . or greater packaging economy . . . Riegel can help you. The next few pages may give you ideas.

. . . the new ideas come from

Riegel

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A HAPPY PET IS FUN!

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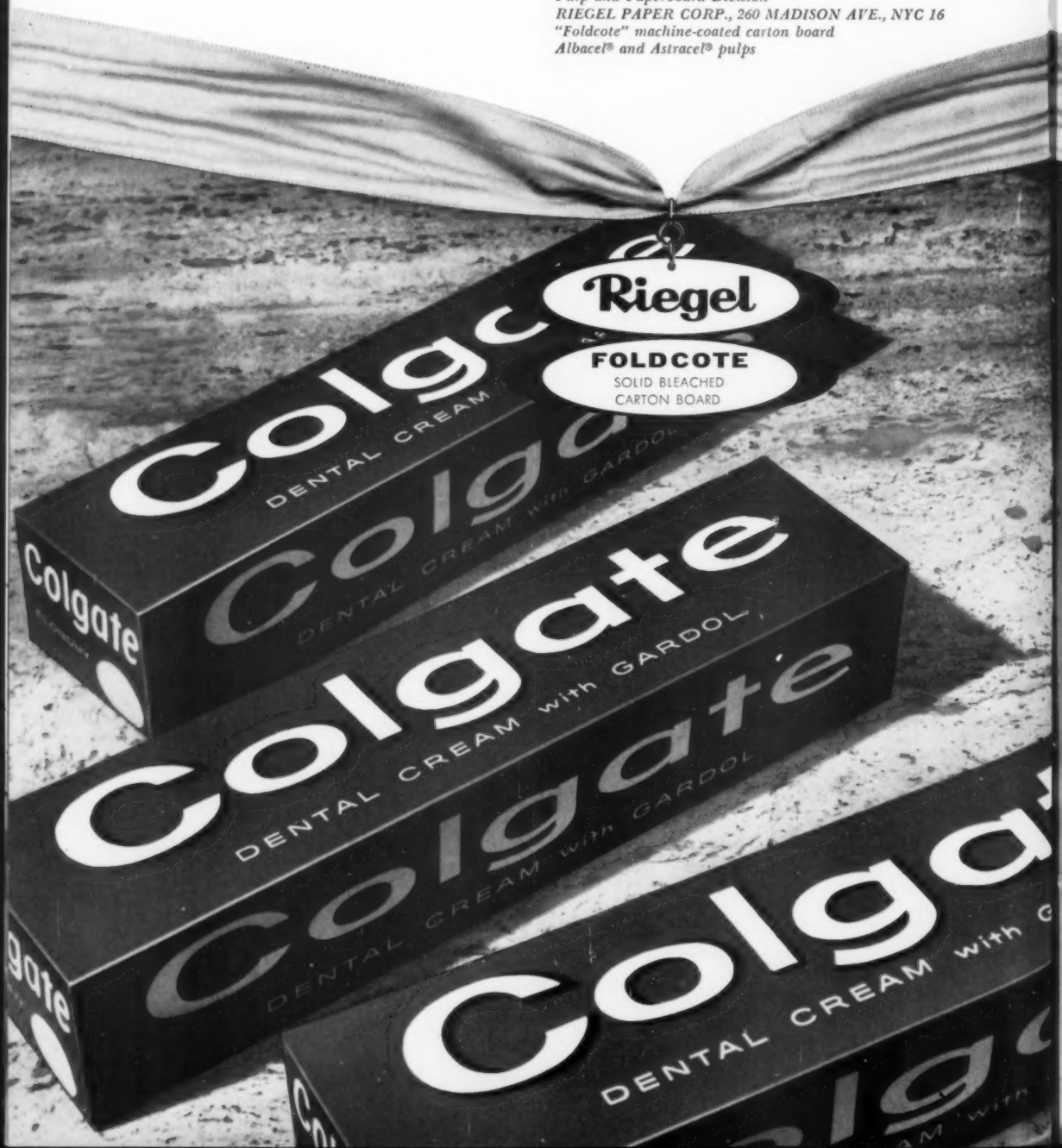

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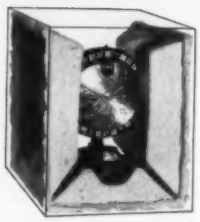
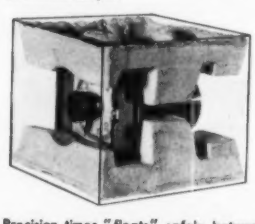


Novelty calendar shows TEKMOLD ability to engineer enclosures for fragile objects of unusual shape.



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Job shop packaging gives "wide" look to foreman's role

By Bernard A. Weber
Packaging Specialist-Foreman—pack, box and ship
X-Ray Department, General Electric Company
Milwaukee

Successfully running a "job-shop" packaging department depends on doing three things: (1) dividing your work force into teams, (2) making specialists out of your working leaders without isolating them in their jobs, and (3) sparking the initiative of every crew member by letting him use experience and judgment.

A thousand different products with many varying combinations (which are delivered to packaging in lot sizes varying from one to 250 units) make packaging standardization difficult. Every order is individual and orders come in all day long. Few similar orders come through at the same time. We never know in the morning what we will have to package that afternoon. Rush orders frequently disrupt schedules.

With such diversified packaging requirements, process sheets would be impractical. There aren't even blueprints in our box shop—merely cards carrying the number and details of cuts to make in box production.

Every man in the department has from 10 to 25 years' experience there. Although the diversified work results in their becoming "general practitioners," we divide them into crews to get teamwork and some specialization.

Each crew has a working leader who has definite responsibilities as a lead man and also works along with his crew.

"Would You Accept This?"

For leaders and crew members alike, the starting point in making the most of their efforts is to instill in them an attitude of quality, a desire to turn out quality packaging. We find this sort of approach very helpful: "If you were buying this product for the price stated, would you accept this particular unit as you have packaged it?"

Getting crew members to think in these terms makes them very conscious of defects. They develop a critical attitude toward outgoing shipments. This "customer-oriented" thinking results in their saying: "We can't send *this* one out." Then if the trouble is in the packaging, they correct it. If it is not just in the packaging, the unit is returned to the shop for further work.

Remember Point Of Use

When you have as much tailored packaging as we do and so much

How does a packaging foreman spark and guide his workers? Where does he spend the most effective hours of his working day? What challenges does he face? Profiling his job with clarity, Mr. Weber answers these questions. His tips on using crews and leaders point up the knack of foremanship. Further, his way of making design engineers aware of packaging shows the broadening job of today's foreman. It also shows the importance of reaching out to other departments when solving packaging problems.

WORKING LEADERS MEET regularly with foreman. To insure effectiveness of meeting, usual practice of foreman is to gather four or five problems meriting discussion, then call meeting.

effort goes into devising packages for particular equipment, it is easy to let it all get costly or complicated. Aside from teaching our people economy in using packaging materials, we also show them that the end of their responsibility is not at the back door of our plant, but rather at the customer's point of use.

Our packaging crews realize that other General Electric people install at that point the equipment packaged in our plant. We find that once they understand this they feel a sense of responsibility and do their jobs more efficiently.

Similarly, when you get this message across, you see them applying packaging methods and techniques to the job of creating packages geared to holding down use-out and unpackaging time. In addition, service calls are reduced. Experienced packagers know that poor or cheap packaging means increased cost in the form of service calls and adjustments at points of use.

Tie-In With Product Design

Teaching packaging people to visualize what happens to their package upon reaching the product's destination is only part of the job. Another knack in the development of capable people is to make them aware of design problems. Part of their job involves telling design engineers what should *not* be done from a packaging economy point of view.

One of the most important personal responsibilities of my job is working with our design engineers to encourage them to develop and design equipment so as to simplify its packaging. A good design engineer must concern himself with packaging and with the point of use. You cannot economically package a product that has an inherently poor design.

Educate The Designers

Part of our work is helping the design engineer appreciate how his design stands up after thousands of miles of travel. Obviously we could package a unit for safe shipment anywhere, but the question is how to do this economically. This relates to design engineering. A designer conscious of packaging often finds ways to avoid surface configurations or projecting parts which would prevent efficient and economical packaging.

We have no formal setup for working with engineers. Some product design engineers have learned through experience that they save themselves rework time by consulting with packaging people before designs become final. Unfortunately many designers have not learned this lesson, and in these cases we must take the initiative.

Learn What's Critical

Whether we go to the engineers or they come to us, the important thing is to find out what is fragile or critical about the unit. Obviously we cannot run to the drawing boards every time a new machine or unit is being designed. However, a way to attain our objectives is to make our design engineers packaging conscious. Then they will be alert to these problems while an item is still in the paper stage.

The training and indoctrination of a newly-hired design engineer should not end with acquainting him with existing product lines. Rather it should extend right into the field to enable him to watch handling and installation of the equipment. In this way he will develop a keen appreciation of the important role packaging will play in his success as a designer.

Split Crew Into Teams

To do the best possible packaging job of our varied product mix, some specialization is necessary. The question is, how much?

We get the best results by using a team concept. Except for one packer who specializes in tubes

Bernard A. Weber has been with General Electric 27 years. Starting in the stockroom, he worked in packing and shipping, later in package engineering, and has been three years in his present capacity. His formal education subsequent to high school includes work in accounting and traffic. Later Mr. Weber took the GE mathematics and electronics courses. He was the first student and first graduate of the GE packaging school and is now a member of the company's packaging council.

How this packaging department operates

"Barney" Weber's department packages complete units, original equipment, plus spare and replacement parts for the X-ray department of General Electric Co. Products packaged go directly to medical, hospital, and industrial consumers as well as to warehouses for later distribution. They move by all principal modes of transportation.

A monthly distribution shipping schedule (supplemented by weekly delivery schedules) is the basis of Mr. Weber's planning. After he gets it, he starts building loads for shipment and accumulating shipping weights. In effect he segregates his production by destinations. As orders come in he divides them by key geographic areas (i.e., East, Central, Central West, West and foreign countries) plus "stock." However, all his planning is subject to disruption by rush orders with the result that constant variety characterizes the packaging department.

Areas And Crews

Facilities for handling all this include the following: a principal packaging area (where four crews work) and one used only for X-ray tube packaging; a staging area, box shop, parcel post room, and shipping supply storage area.

Mr. Weber has 24 men for this work. They include 13 packers, divided into four crews of three each, plus one extra man assigned to tube packaging. Also there are four boxmakers, two men assigned to shipping, and four who handle receiving stock. There is one extra lead man. He works by himself—keeping later hours than other crew members.

Besides the "late" lead man there are six other working leaders. Each of the four-man crews has a leader, and one of the boxmakers serves as leader in the box shop and lumber storage area. One of the two shipping men acts as leader for that work.

Little Standardizing

Because of diverse production, it is impractical to keep any but the smallest inventories of packaging materials such as corrugated board and boxes. Standardization is impossible, and yet crews make every effort to make one box fit several applications. There is a continuous program to cut down on the number of different boxes used and yet not lose packaging effectiveness.

Another factor militating against the keeping of corrugated box inventories is that model dimensions change without notice. An inventory of boxes planned to hold a given item might be obsolete before the plant could use them up—because of later models not fitting the boxes designed for earlier models.

Staging Area Helps

An important adjunct to the packaging operation is a staging area. Items from various points in the plant arrive here to await final accumulation. Some components of an assembly wait in the staging area while other components of the same assembly are going through the manufacturing cycle. In spite of constant fluctuation, variation, and delays, for the most part there is a steady flow of material out of the staging area.

This places particular responsibility on good production control. Without it the staging area would fill up with items the plant could not ship. In general, production accumulating in the area expands and contracts like a bellows as assembled items await packaging and shipment.

and works in a separate area (X-ray tubes are costly and fragile, justifying special treatment), our basic packaging team consists of four crews of three men each.

One of the three is a working leader. Much depends on how well he does his job as lead man. In addition to working with his own crew, he serves as a sparkplug, looks after details, fixes responsibilities for crew tasks, does a lot of the paper work, and checks incoming and outgoing records.

Keep Leaders Informed

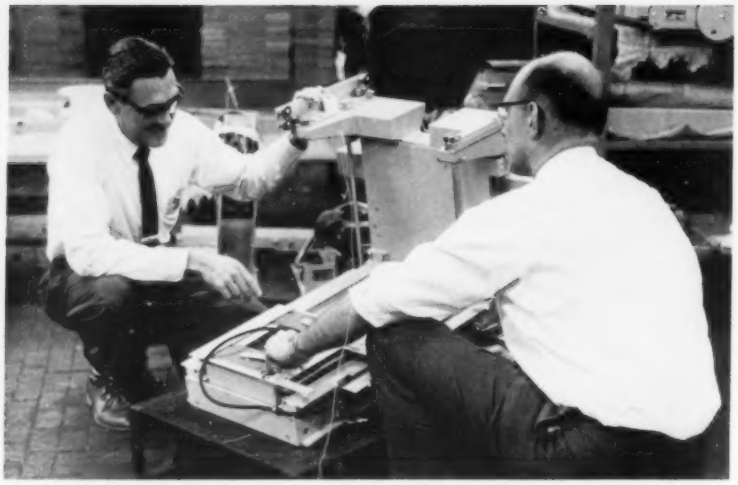
Making the most of the special talents of working leaders depends on keeping them informed and answering their questions. Aside from frequent casual conversations with leaders, a helpful practice is to hold leader meetings regularly. One way to do this is to let four or five problems or questions accumulate and then have a meeting to discuss them. In this way the best ideas of all the working leaders can be used to solve the problem. This also broadens their overall packaging background.

To provide packaging service outside regular working hours, one of our working leaders starts work later in the day and is available for "after-hours" rush jobs.

Working by himself for part of the day, he covers the entire range of work which individuals might handle separately while the regular crews are on duty. The working leader meetings help to keep him fully informed about changes and developments in the work of the department.

Other lead men are in the box shop and parcel-post room. We have them attend our leader meetings so that they are abreast of what the packaging crews are doing. If you want your team members to be general practitioners, be sure they don't become inflexible or resistant to new ideas. Therefore you do what you can to broaden their experience.

(Turn page)



CLOSE CONTACT with product engineer lets foreman find out what is critical about new item, gives him chance to work out difficulties (say, odd configurations) of packaging new item.

Share Details With Crews

Next to helping leaders to develop and keeping them informed, the most important part of the foreman's job is close contact with all crew members. An ideal way to achieve this is through meetings with the crew members. While the lead men settle many questions and get involved in details about which we need not bother our crew members, it is important to keep all the men informed.

This is especially helpful when there are changes in packaging methods. A foreman frequently must develop wrapping procedures himself, show men how to use these in the stockroom, explain and demonstrate techniques of inventory, and offer specific pointers on packaging techniques.

Make Spot Checks

Daily spot checking is a useful tool the foreman should use to maintain supervision of packaging operations. It is a good idea to spot check the crew's cushioning techniques, nailing patterns, and box-making methods. Watching fundamentals prevents any slippage in packaging quality levels.

Sometimes it is necessary to solve specific problems bothering a crew at the moment. The only way to do this is to go out on the floor, isolate the problem, and solve it on the spot.

To illustrate: our cushioning material seemed to be somewhat abrasive, and this was becoming a big problem for us. We ended this difficulty by having crew members put dry wax paper between the cushioning and the product. Probably every foreman supervising a similar packaging force has had like problems. Your crews benefit from getting quick, simple, and practical solutions to problems as they happen.

Show Them What's New

Another knack of foremanship is the job of selling a new concept to the men who must make it work. Getting them to accept it is 50 per cent of the problem of making it work. One approach is this: when something new comes along, show it to your entire crew at once.

In this connection, try to have an assembled or completed model. This enables them to visualize just what they are packaging. If you merely show the unassembled components, it is hard for them to grasp a new or unfamiliar unit. But if you show them the whole thing, they see for themselves what is delicate, requiring special protection, and just what projections or configurations may give trouble. They get a different perspective seeing it assembled as a unit than when they see it knocked down ready to package.

Leave Men Alone

Note that a foreman's trips onto the floor are largely for spot checks. Basically you have to leave your people alone if you want them to develop their initiative. There must be good supervision, but it has to "come and go" rather than be a constant shadow.

You must drop in on your men, know what they are doing, take an interest in their work, and guide them individually, but you should not maintain a constant vigil. If you want a sure way of stifling the initiative of a promising new packaging man, just spend a lot of time watching over his shoulder as he goes about his work.

Develop Your "G.P.'s"

If your packaging is as diversified as ours, you might find it worthwhile developing the general practitioner concept. In spite of the wide range of work, crew members with broad experience soon acquire the knack of devising new packaging. When something unusual comes along, for example, they may recall that years earlier they packaged a unit somewhat like it and can apply the same ideas again.

In this connection, we do not use any scientific tests when interpreting packaging technicalities for our men. When something new comes along, my own practice is to compare its packaging requirements with some existing design on which our people have experience. This is especially applicable when you have problems with exceptionally delicate parts or protruding members comparable with something you have previously packaged successfully.

It pays to develop this kind of attitude so that your crew members learn to think for themselves and draw on their own experience. It is in this area that the benefits

of making your people aware of the whole packaging cycle come into play. A leader or crew member may suggest applying some particular packaging technique to a new unit. Somebody else may say, "We can't do that," because doing it adds time at the service end or causes other difficulty before the product starts operating at the point of use.

In all this, what separates a good packer from a mediocre one is that he is conscientious. He handles his work as if he were planning to buy the unit himself. But there is more to getting this level of performance than simply having resourceful packaging teams of alert individuals.

We check up on the effectiveness of our packaging. One of our methods is furnishing postcards for users to fill out and mail back. We get a 60 per cent return on these cards, and the replies are sufficiently specific to confirm our judgment about the package or guide us in making it better.

Check On Effectiveness

The condition in which your products are received at destination reflects on the quality of your packaging-warehouse-shipping cycle. For this reason you should always investigate carefully any complaints such as "found damaged in shipment." Tracing these back, we frequently establish that the damage was not due to faulty packaging. Sometimes this results in improvement of shop operations such as assembly or painting techniques.

This merely emphasizes that a packaging foreman has to spend a lot of time outside his own area to do his job properly. The other side of the coin is that if you develop a sound organization, you can be away from your area for hours at a time without having things fall apart. In our case, the operation does not depend on my being present constantly.

Know Others In Company

There are many other services available to an alert foreman. A good purchasing man is a big help to you. He can keep you up to date on "bargains." For example, he may advise you to stock up on lumber for boxes because of coming price changes. Remember, it is the money in *your* budget you are saving when you act on his tips.

BEST WAY TO TEACH new packaging technique is for foreman to go out on floor to show crew members how it works, how they can do it. This helps sell them departures from usual ways.

Similarly, you should spend time keeping in touch with your sales and service people. They can help you improve your packaging by telling you exactly how certain parts and units get damaged. Simply saying that a cover arrived broken or a casing arrived with dents is not enough. Just where on the cover or casing did this happen? What kind of break or dent was it? Working with your service organization gets you precise reporting of the kind that helps pinpoint packaging errors.

Listen To Salesmen

However busy you are, always find time for salesmen calling on you. If your work keeps you pretty close to the plant, these vendor representatives are a major source of outside contact for you. No matter how much you read or how many packaging shows you attend, well-informed salesmen can help you.

Salesmen today are quite conscientious in telling you when their equipment does or does not apply to your particular needs. The contacts and fresh ideas you get from these people are worthwhile. Making yourself inaccessible to salesmen is a mistake. In addition, working with vendor technicians in developing new packages provides a real opportunity for you to improve your operations.

Foreman's Job Never Done

Another area deserving some of your time is that of your industrial engineers and methods men. Keeping in touch with them leads to ways of (1) getting more effective packaging and (2) bringing about changes which help hold down assembly costs.

Still another activity deserving attention is consultation on government bids. When any company gets into government work, there is extra work for the packaging man and the additional responsibility on his part to keep management informed of the packaging implications.

Many companies have lost money on government contracts by overlooking the packaging specifications. They took them for granted—only to find out they had not allowed for costly provisions that should have been in their bids.

(Continued on Page 126)

Determining the oil and grease resistance of polyethylene-coated paper need no longer be slow and inexact. Reviewing a new fast and accurate test method, Messrs. Hunter and Cooper show how to precheck coatings, make test pouches, add a little Rhodamine B Base dye, and seal and store the packages. Then they point the way to performance prediction through scrutiny and analysis of failures.

New test speeds poly-paper testing, pinpoints failures

By Paul H. Hunter, *Development Associate*
and Calvin C. Cooper, *Group Leader*
Development Department
Union Carbide Plastics Company
Division of Union Carbide Corporation
Bound Brook, New Jersey

To evaluate the potentials of a packaging material you must know its exact capabilities: where and under what conditions it will fail. Until now, detecting and describing the point of failure in polyethylene-coated paper pouches in contact with oil and grease has been difficult, time-consuming, and not completely reliable.

A new method, developed recently in our packaging laboratories, greatly simplifies these determinations. In essence, you merely add a small amount of Rhodamine B Base dye to the oily test material and pack it in sealed pouches. After storing it you inspect it visually: the nearly colorless oil-dye mixture inside the pouch becomes a vivid red when it penetrates the coating and reaches the outside layer of paper.

You can readily see two types of failure:

1. Localized—a small red spot appears and gradually grows larger.

2. Over-all permeation—a uniform red coloration of the paper develops within the sealed area.

By using this test for screening polyethylene-paper combinations and comparing time-to-failure of various samples, you can be sure of using the right combination—eliminating packaging failures before they happen.

Old Method Slow

With former methods for evaluating the resistance of polyethylene-coated paper to oily products (using static storage in sealed pouches) you had to examine the test packages carefully under favorable lighting conditions. Even so, there was difficulty in detecting and defining leakage or over-all permeation objectively.

For example, you could easily mistake a dark spot on the paper substrate for a localized failure of the coating. Also, you could not detect with precision the first signs of over-all permeation of the oil through the pouch wall even after making a tactile search for slickness on the surface of the pouch—and this was one of the best criteria. This time-consuming test was imprecise and not at all definitive.

New Method Simple

The new method is comparatively simple to carry out and has the great advantage of providing visible evidence of the type of failure.

We find the new method of testing a great aid in evaluating the resistance of a variety of coated papers to oil and grease permeation. We apply the test primarily to 25-lb. pouch paper extrusion-coated with low-, medium-, or high-density polyethylene in 0.0005- to 0.0015-in. thickness, but we also use it effectively to test unsupported polyethylene film. In most cases we use SAE 20

1 TEST POUCHES are made of two 4x4-in. pieces of polyethylene-coated paper sealed (plastic to plastic) on three sides.

(medium viscosity) motor oil, peanut oil, butter, and lard as the test liquids; however, you can substitute other oils and greases.

This test is now standard at our laboratories, and we believe that coaters and packagers will find it equally useful in their studies.

Pre-Test Coatings

You should first make a preliminary examination of the polyethylene-coated paper to be tested to make sure it is of reasonable commercial quality. Such an examination allows you to detect pinholes or voids in the coating; if these are excessive in a particular sheet, you remove it from further consideration.

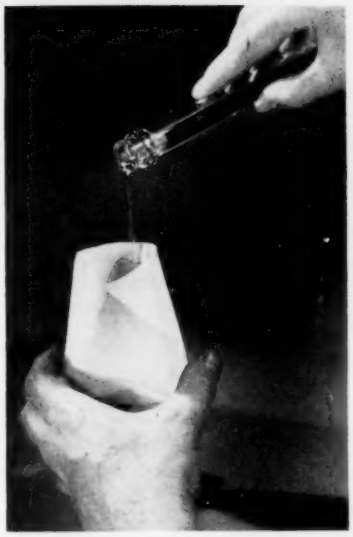
To make the preliminary test, you roll the paper out carefully (coated side up) on a smooth, flat, clean surface. Distortion or other rough handling of the coating causes atypical test result. Using a wide, soft paint brush, swab the coated side with a one per cent solution of methylene blue in methanol and wipe off immediately with a clean, soft, lint-free cloth.

Now examine the paper side: the blue spots indicate the location and number of flaws. You should consider coatings showing 10 to 20 spots per square yard, depending on coating thickness, of marginal quality.

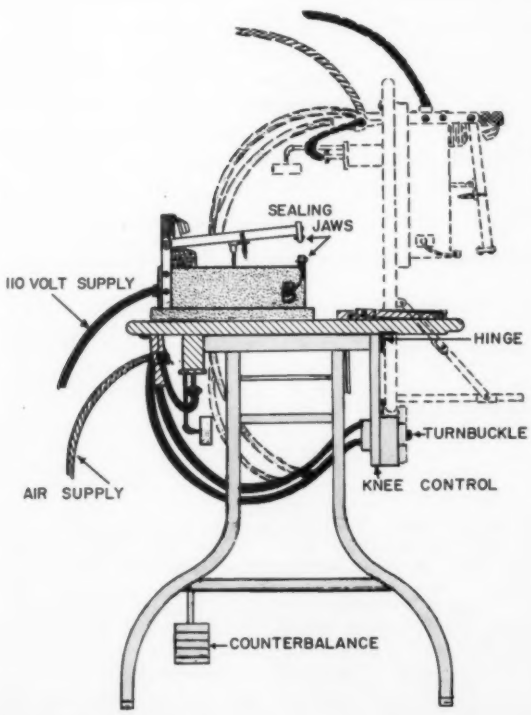
Making Test Pouches

You first cut acceptable coated paper, i.e., any part unmarked by blue spots, into 4x4-in. sections to make into packets. Save the scrap stock; you can use it later to determine the best setting on the impulse sealer—a setting that produces a strong bond without excessive flow of the coating. Excessive flow causes failures in the seal area which are not typical of the material.

Form the test bags by accurately

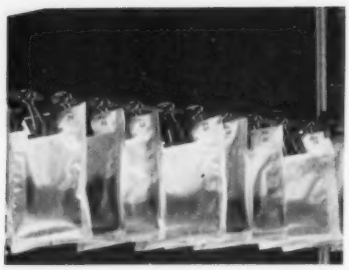


2 AFTER OIL-DYE MIXTURE is added, bag must be sealed immediately. If oil touches seal area, seal is not dependable.



3 MOUNTING IMPULSE SEALER on hinged top of stand permits swinging sealer jaws to horizontal or vertical plane while maintaining well-balanced assembly, solving problem of final sealing.

4 SEALER swings to vertical position to easily and dependably seal fabricated pouches containing oil-dye mixture.



5 FOR EASY INSPECTION, clips attach pouches to rod. This also prevents contact and possible contamination of samples.

aligning pairs of the 4x4-in. sections (plastic to plastic) and seal on three edges to form the bag. (See Fig. 1.) You should properly code each bag for further identification. We recommend preparing five replicates for each test at each storage temperature, generally 70° and 100°F.

Add Dye To Test Sample

To prepare the test oil or grease, you add 0.10 gr. of Rhodamine B Base—an oil-soluble, fluorescent dye—to 1,000 gr. of sample. Weigh the dye on an analytical balance. The dye dissolves faster if you warm the oil-dye mixture to 90-100°F. to melt solid materials such as butter and lard. Keep the mixture warm and stir it frequently until you use it.

Now transfer 15 ml. of the oil-dye mixture to each fabricated pouch, as shown in Fig. 2, and seal immediately—about 1 in. from the top. It is important that you seal the bag at once. If oil touches the sealing area beforehand, you cannot get a dependable seal. It is also necessary that your hands are clean and free of oil while you are fabricating and examining the pouches.

Final Seal Vital

Final sealing of the test packets, after adding the oil-dye mixture, was generally quite tricky. After adding the oil, we bent the top of the packet to a 90° angle and then made the seal on a conventionally-mounted impulse sealer. However, bending the bag brought the walls closer together, decreased the bag's volume, and frequently caused the oil to surge up and contaminate the surface to be sealed.

We solved this problem by mounting the sealer on the hinged top of a stand as shown in Figs. 3 and 4. This arrangement permits swinging the sealer jaws to either a horizontal or vertical plane while maintaining a well-balanced assembly.

It then becomes a simple matter to fabricate a bag. You place two pieces of the coated paper, plastic to plastic, between the jaws in the horizontal position when sealing the first three edges. Then you swing the sealer to the vertical position and can easily and dependably seal the fabricated bag containing the oil.

Orderly Storage Of Samples

You can facilitate inspection of specimens by seizing each bag above the final seal with a spring clip (L.E.B. No. 5 medium or equivalent) and suspending the clips from a ¼-in. iron rod attached horizontally to a ring stand, as shown in Fig. 5. This type of storage is orderly, prevents contact and possible contamination of samples, and permits easy examination of packages.

Failure: Two Types

The Rhodamine B Base dye acts as an indicator. You quickly detect it without using an ultraviolet light source: the dye undergoes a marked change of color after penetrating the plastic and reaching the paper. The dye is virtually colorless in its mixture with the oil and grease used for testing but becomes a vivid red when it permeates the plastic and reaches the paper.

The development of the vivid red color is believed due to the reaction of the dye with the chemicals of paper manufacture. Thus, before conducting the test, we suggest you put a drop of the oil-dye mixture on the uncoated side of the paper to be tested. If within two hours the spot on the paper takes on a vivid red coloring, you can assume that the grease resistance of that paper type can be accurately tested by this procedure.

Extensive tests in our laboratory show that two types of failures occur. One type is localized failure. This results from weak spots in the coating which permit spotty passage of the oil-dye mixture. With this type failure a small red spot appears on the paper and gradually grows larger. Such localized failures generally occur early in the test. (See Fig. 6.)

The second type of failure results from over-all permeation of the plastic by the oil-dye mixture. You can recognize this type failure by the development of a uniform red coloration of the paper within the sealed area. (See Fig. 7.) You

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Calvin C. Cooper holds a B.S. degree in agriculture from Cornell University and a Ph.D. in horticulture from Michigan State University. Since joining Union Carbide in 1954, he has worked on the development of plastic resins and compounds. Dr. Cooper is a member of Packaging Institute, The American Society of Horticultural Science, The American Society of Plant Physiology, Pi Alpha Xi, and Sigma Xi.

should consider any significant coloration of the paper as constituting a failure.

We recommend examining the samples at the end of 24, 48, 96, 168, 240 and 336 hr., and every 168 hr. thereafter, until three of the five samples fail.

Reporting Results

You can simplify reports on package performance by using a summary report form, similar to that shown in Fig. 8. You can modify your form to suit your particular needs, but it should have space for the code number (which refers to the complete description of the material tested), a place to record the time-to-failure and space to indicate the type of failure, i.e., local or uniform.

Due to space limitations on the form, we use a separate notebook for descriptions of the materials tested. Under the appropriate code numbers we indicate the resin type and blend, coating thickness and coating conditions such as temperature, speed, and substrate. We record the time-to-failure as the number of hours or days to the failure of the third, or median, sample of five samples tested.

Among the four oily materials which we tested extensively in our laboratory, peanut oil caused the earliest failures, then lard, butter, and lastly motor oil, as illustrated by the data below.

Oil And Grease Resistance Of Polyethylene-Coated Paper

(Days To Failure)*

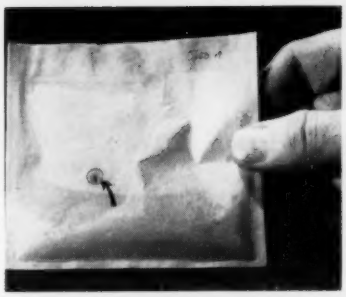
Coating Thickness	Peanut Oil	Lard	Butter	Motor Oil
0.0005 in.	2	5	6	120
0.001 in.	3	10	11	160
0.0015 in.	5	18	20	280

*Time to failure recorded as the number of days to failure of the third, or median sample of five samples tested.

Polyethylene Film Tests

We have used this new testing procedure quite extensively in our laboratories and have found it a great aid in evaluating the oil and grease resistance of a variety of coated papers. You can use the same oil-dye mixture to effectively test polyethylene film by either of two methods: in the first, you simply place a sealed film pouch containing the oil-dye mixture in contact with absorbent paper. By examining the paper for localized or over-all reddening, you can define performance of the film.

An alternate adaptation involves placing the oil-dye mixture in a Thwing-Albert cup. You then place a disc of the film and a disc of paper on the mouth of the cup and attach them firmly in place by means of the retaining rim. Store the cup in an inverted position. You can inspect the cups swiftly by returning them to an upright position and examining the paper, noting failures as previously indicated.



6 LOCALIZED FAILURE of polyethylene coating shows up as small red spot (circled) which gradually grows larger.

7 OVER-ALL FAILURE caused by general permeation of oil-dye mixture. This results in over-all red coloration of pouch.

Test Has Merit

By comparing the time-to-failure on a number of samples of various coatings, coating thicknesses, etc., you can make a realistic and objective evaluation of pouch performance. Thus by using this comparatively simple test you can be assured of using the right polyethylene-paper combination for a specific packaging job. *(End)*

SUMMARY SHEET OF OIL AND GREASE RESISTANCE DATA — TEST METHOD #C-61-D

TESTED BY: JOHN DOE — DATE: JULY 18, 1961 — TEMPERATURE: 23 °C.

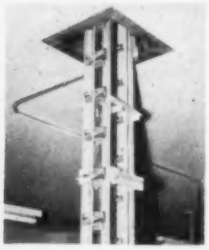
CHECKED BY: MARY ROE — DATE: JULY 20, 1961

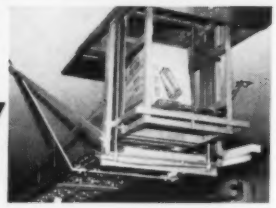
CONDITIONING: NONE

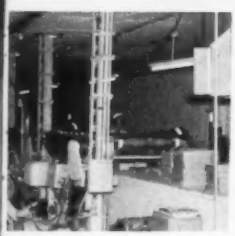
PROPERTY: OIL AND GREASE RESISTANCE OF POLYETHYLENE-COATED PAPER — REMARKS

UNITS: DAYS TO FAILURE

| MATERIAL **** | | |







Bi-level Packaging gives space for mechanizing

By Clayton R. Martoccio,
Executive Vice President
and Frank A. Martoccio,
President
Hollywood Candy Division
Hollywood Brands, Inc., Centralia, Illinois

Developing and engineering a bi-level operation showed us how to get peak use of floor space and equipment. At our Ashley, Ill. plant, plans to mechanize the packaging of our six-bar home pack hit an initial hurdle: we had no space on our packaging room floor for additional equipment. This left us two choices: add on to a multistory building (a costly step) or split the operation between two floors. We chose the split.

Old Way Costly

We previously used a tuck carton overwrapped with cellophane to hold six individually wrapped candy bars. This was an expensive manual operation as well as an expensive package. Because the bars are individually wrapped they do not need the cellophane for protection. It is only a seal to prevent pilferage.

Our crews used to do this hand packing and overwrapping of the six-bar pack on tables in the packaging room. But it was slow and crowded. We decided to eliminate the cellophane overwrap and use a glued-end window carton to solve the pilferage problem. Also, this meant installing only one machine —to fill and seal this style carton— instead of two machines—one to fill and one to overwrap.

Took Space From Storage

Space was our initial problem. (See Fig. 1.) There wasn't another square inch for any new equipment in the packaging room. It holds equipment consisting of three chocolate enrobers, a bank of seven Wrap-O-Matic bar wrappers on each side of each enrober (total of 42 wrappers, plus case stapler and discharge conveyors.

Thus we decided to put the new equipment in the storage area on the floor above. This proved feasible even though it required transporting the candy up and down.

We decided to use one bank of seven bar wrapping machines to feed our new six-bar home-pack line. We selected a custom-built Redington cartoner which has the capacity to handle the output from the seven bar wrappers. Putting the cartoner on the floor above the packaging room, our next step was getting a means of elevating the wrapped bars, accumulating them, and arranging them in a column of groups each containing six bars abreast. This is the infeed pattern the cartoner demands.

Use Individual Elevators

The most efficient plan was to equip each bar wrapper with its own elevator and elevator discharge conveyor. To allow for surges or stoppages at the bar wrappers, we installed an intermediate or accumulating conveyor

Clayton R. Martoccio joined his father's company in 1930 as a mechanic, having previously gained experience with machinery and heavy-duty equipment. He later assumed charge of macaroni manufacture and then of the candy production. Since 1936 he has been executive vice president of Hollywood Brands, Inc.

Frank A. Martoccio completed a two-year engineering course at University of Minnesota. In 1912 he founded the F. A. Martoccio Macaroni Co. This was the first of a succession of corporate and manufacturing activities and company purchases, and led eventually to the present organization Mr. Martoccio now heads.

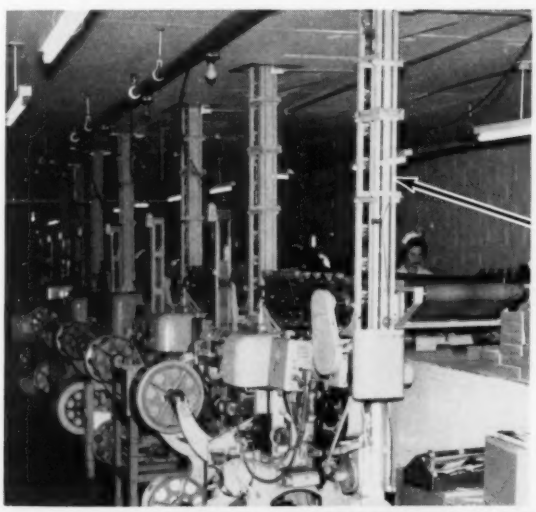
between each elevator discharge conveyor and the cartoner intake conveyor.

Essentially of angle-iron construction and about 5 in. square in cross section, each elevator (see Fig. 2) extends from its wrapping machine upward through a 10-in.-square hole in the ceiling. Cleats mounted about 5 in. apart on link-type chain pick up the wrapped bars from the bar wrapper and lift them upward to the elevator discharge conveyor on the floor above.

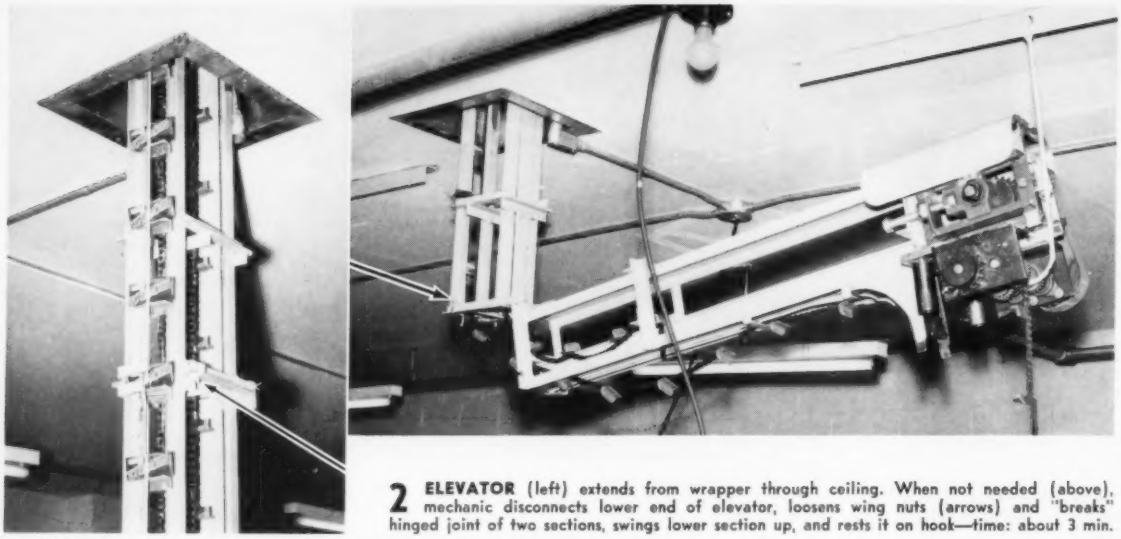
Each elevator is positioned on its respective wrapping machine so that the machine discharges wrapped bars directly onto the elevator cleats. On one shaft of the wrapping machine's endless discharge conveyor, we mounted a sprocket on which a link-type chain rides and connects to the elevator gear train. This powers the elevator in proper timing with the bar wrapper.

Needed Flexibility

To provide flexibility of these seven bar wrappers—so they can be easily switched back to supplying wrapped bars for our larger size packs—we designed and constructed the elevators for fast changeovers. Each elevator is in two sections joined together at a point about 20 in. below ceiling level. The upper section is mounted permanently to the floor above the



1 USING TWO FLOOR LEVELS solved lack-of-space problem for mechanized packaging of Hollywood's six-bar home pack. Company built and installed elevator (arrow) for each of seven bar wrappers to carry candy to floor above. Operator (right) transfers bars from enrober discharge belt to wrapper intake conveyor.



2 ELEVATOR (left) extends from wrapper through ceiling. When not needed (above), mechanic disconnects lower end of elevator, loosens wing nuts (arrows) and "breaks" hinged joint of two sections, swings lower section up, and rests it on hook—time: about 3 min.

packaging room. The lower section, when in use, is anchored to the wrapping machine. When crew members change over these seven bar wrappers to feed wrapped candy to the lines for the larger size packs, they must remove the lower section of the elevators from the machine.

Rather than joining the two sections with nuts and bolts to remove and/or replace for every changeover, we hinged the two sections together. Opposite the hinge, two swivel bolts with wing nuts hold the joint rigid. The lower end of the elevator's bottom section fastens to the bar wrapper with two bolts and the drive chain.

3-Min. Changeover

To make a changeover from the six-pack to larger packs, the mechanic does the following:

1. First he opens the link drive chain, then the elevator chain carrying the cleats.
2. Next he removes the two bolts which hold the elevator to the machine.
3. Then he releases the two swivel bolts at the joint of the elevator sections.
4. Finally he swings the lower section up and rests it on a large hook hanging from the ceiling. (See Fig 2.)

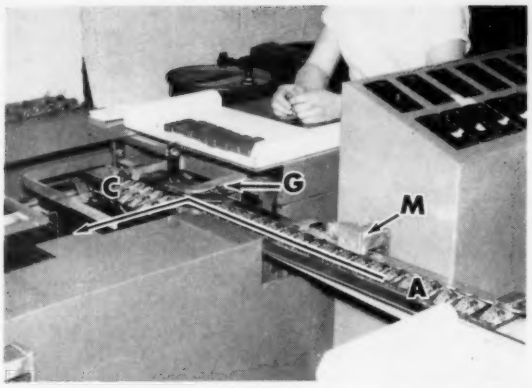
In this manner the elevator is completely out of the way. There are no pieces of equipment lying around on the floor as a hazard. Total time: about 3 min.

Rotate Bars 90°

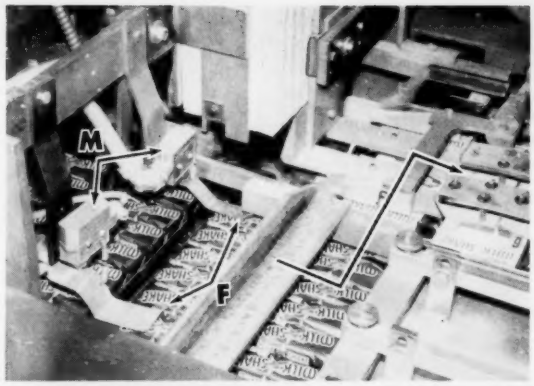
The seven discharge conveyors from the elevators are regular belt conveyors installed in a conventional manner. Each one of these conveyors meets its respective accumulating belt conveyor at right angles. (See Fig. 3.) Bars from an elevator pass on to the elevator discharge belt crosswise and must be rotated 90° for proper orientation on the accumulating conveyor. A flat metal bar protrudes on an angle at the head and over the belt

3 ON SECOND LEVEL, seven elevator discharge conveyors (far left) feed bars to seven accumulating conveyors. Metal bar (B) catches end of bar, rotates it 90° to proper alignment. Girl at panel switchboard controls whole operation. (Arrow shows flow direction.)

4 ENTERING ACCUMULATING CONVEYORS (left) bars are about 5 in. apart. Gate at discharge end of conveyor stays closed until bars close up. Then it opens, allows six bars to pass to carrier plate of cartoner conveyor. (Arrow shows flow direction.)



5 **GATE (G)** keeps bars from entering cartoner intake conveyor until at least 12 bars are together at discharge end of accumulating conveyor (A). Bars under Micro Switch (M) actuate switch, closing part of circuit operating gate. When carrier plate (C) is in proper position, gate opens. (Arrow shows flow direction.)



6 **FOR FINAL COUNT CHECK,** two metal leaf "fingers" (F) "feel" bars passing under them. With six bars per tray, end bars touch fingers and deflect them upward slightly. This in turn actuates Micro Switches (M) which control carton release. If either switch fails to close, no carton. (Arrow shows flow direction.)

of each elevator discharge conveyor. This catches one end of each bar, causing it to rotate and align itself properly.

As bars pass from an elevator discharge conveyor to the respective accumulating conveyor, they are spaced approximately 5 in. apart. At the discharge end of each accumulating conveyor, there is a gate which holds the lead bar until the gaps between the bars are closed up and all the bars are touching one another. (See Figs. 3, 4, and 5.)

Switches Assure Product Flow

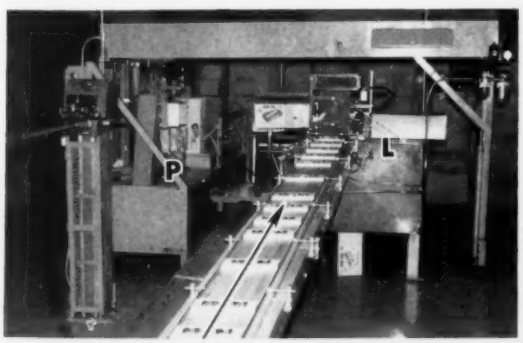
At a point about 12 bar widths from the discharge end of each accumulating conveyor, we mounted a Micro Switch over the conveyor. (See Fig. 5.) As long as there are bars under this switch, it remains closed and completes part of the circuit which operates the gate at the discharge end of the conveyor. This gate is timed to open and allow six bars to pass from that accumulating conveyor to a carrier plate on the infeed conveyor of the cartoning machine.

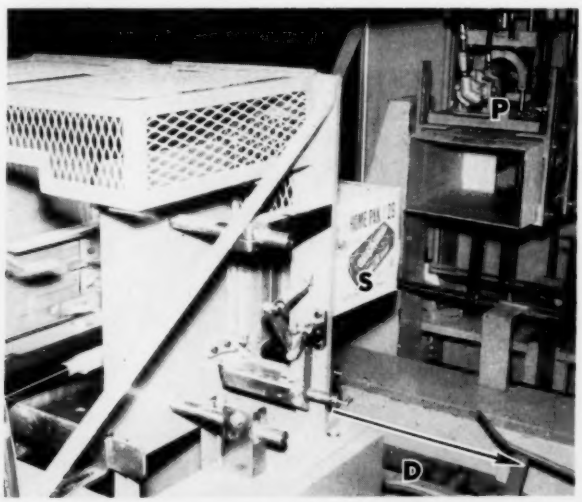
Should a bar wrapping machine shut down or a jam occur so that bars fail to fill up an accumulating conveyor, the Micro Switch is actuated. This opens the circuit, causing the gate at the discharge end of the accumulating conveyor to remain shut. This assures us of always getting six bars on each carrier plate.

How Line Stops

If a jam occurs on any of the seven accumulating conveyors, or if one or more of these conveyors stops or fills up with candy, an operator at our home-built panel board (see Figs. 3 and 5) adjacent to the accumulating conveyors stops the bar wrapping machine(s) on the floor below. She merely flips a toggle switch wired in series with the starting switch for the given wrapping machine causing the machine to stop.

The bar wrapper operator can-



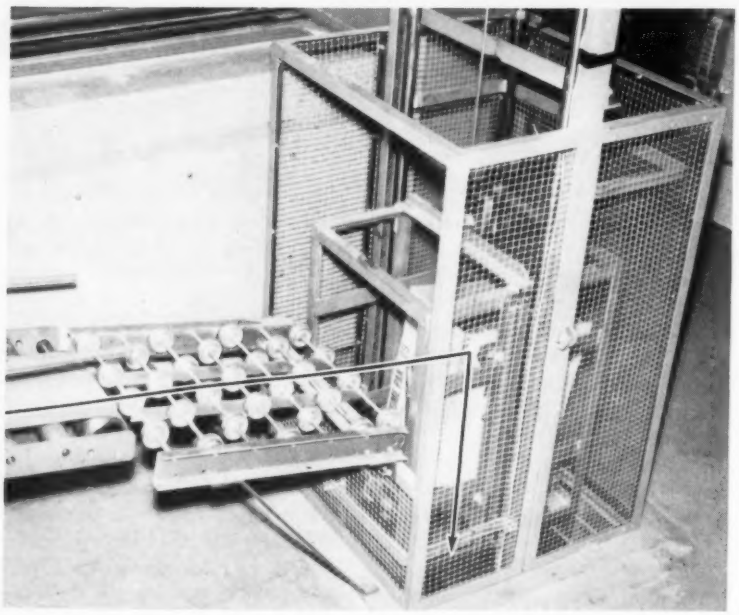


7 **AUTOMATIC CASE LOADER (L)** accumulates 24 finished cartons from cartoner (left photo) in 3 tiers of 8 each and moves group into empty shipper (S, right photo). Machine lowers packed case to belt (D) leading to lowering device (see Fig. 8). Empty shipper in set-up machine (P, right photo) moves into place for loading when filled case drops. (Arrow shows flow direction.)

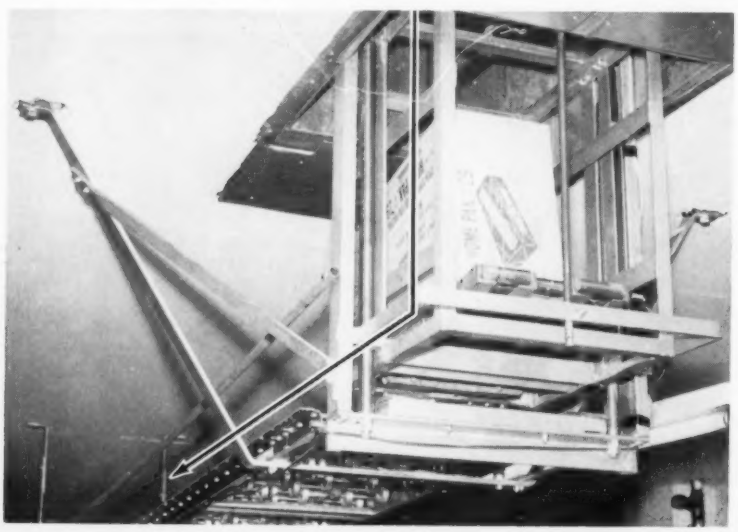
not start her machine again until the girl upstairs clears the jam or corrects any other trouble and flips the switch back on, closing the bar wrapper starting circuit. Likewise, if the cartoner or the cartoner infeed conveyor stops, the panel board operator turns off all seven bar wrapping machines on the floor below.

Feeding Cartoner

Since the carrier plates are on an endless chain, they traverse the entire length of the cartoner infeed conveyor. Thus all plates pass by the discharge ends of all seven accumulating conveyors. If a given plate already has a load of bars when it passes by the end of an accumulating conveyor, the gate on the conveyor does not open. If the gate did open, there would be a jam.



8 **SELF-OPERATING LOWERING DEVICE** carries filled cases (above) down to ceiling-hung conveyor in packaging room (below). Counter-weights hold cage at uppermost end of shaft. Weight of filled case forces cage to bottom, where pneumatic cylinders cushion drop. After case rolls from cage, counter-weights pull cage back up. (Arrow shows flow direction.)



Make Final Count Check

The carrier trays transport the groups of six bars into the cartoning machine. Just as they enter, two Micro Switches make a final check for six bars on each tray. (See Fig. 6.) Suspended over the path of the trays, these switches are located over the two outer candy bars on each tray. A metal leaf "finger," connected to each switch, "feels" for a bar passing under it. When there are six bars in the tray, the end bars touch the fingers and deflect them upward slightly. This motion in turn actuates the switches which are a part of the circuit controlling the empty carton release from the carton magazine on the cartoner.

Closing both switches completes this circuit which releases an empty carton from the magazine to the waiting conveyor pocket in line with the given tray. If either switch remains open—due to a group having less than six bars—no carton enters the pocket. This assures us that every finished carton contains six bars.

Case Packer Is Two Machines

The packed cartons emerge from the cartoning machine, go through the compression section, and pass along a belt conveyor to the automatic case packer. (See Fig. 7.) We installed an FMC Model R-100 Sure-Way case loader to which The Systemation Corp. coordinated its Sysco I, Model C-100 case setup and positioning machine.

The loading machine accumulates 24 cartons in a pattern of 3 tiers of 8 cartons each. Then it moves the group of 24 cartons into the empty shipping container.

As soon as it packs a case, the loading machine turns it right side up and lowers it onto a belt conveyor leading to a lowering device in the floor. An instant later, the positioning machine, having already set up another empty case, carries this case over to the loading

machine and puts it into position to await the next group of 24 cartons.

The Lowering Device

The lowering device (see Fig. 8) is a 2-ft. square shaft-like framework which we built of angle iron. This "shaft" extends above the floor level approximately 3 ft., through the floor, and hangs down about 2 ft. below the ceiling of the main packaging room.

A cage, also of angle-iron construction, fits inside this shaft between two vertical iron rod guides. The cage hangs on a steel cable connected to a set of counterweights through a system of pulleys in the ceiling above the case packing operation. The counterbalance is just heavy enough to hold the cage at the uppermost part of its shaft in readiness to receive a filled case.

Case Lowers Itself

When a packed case discharges from the case packer, it travels down the powered belt conveyor, and then passes onto a short roller conveyor and into the lowering device cage. Offsetting the counterweights holding the cage upward, the weight of the filled case carries the cage downward to the bottom of the shaft. *(Turn page)*

9 MOVING BY GRAVITY, filled cases of six-bar home pack candy come down sloping conveyor (at right) and meet cases of other types of packs from other three lines. One man uses self-adjusting semiautomatic machine to staple all cases. (Arrows show flow directions.)

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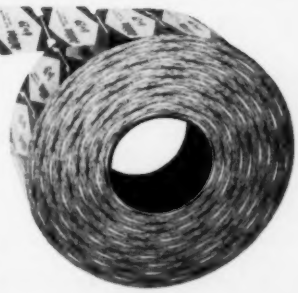

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We installed pneumatic cylinders at the bottom of the shaft to cushion the cage as it nears the end of its drop so that the cage touches shaft bottom gently. Likewise, another cylinder at the top of the shaft slows the empty cage as it returns to its uppermost position. These cylinders work like ordinary shock absorbers. They do not use compressed air.

In the bottom of the cage we installed a set of rollers, arranged so that it will rock. As the cage comes to rest at the bottom of the shaft, one end of this set of rollers contacts a metal stop bar. This rocks the roller assembly just enough so that the case rolls out of the cage by itself.

From the cage, the filled case rolls onto a roller conveyor and goes by gravity to the case closing station. Here the case meets others from the other three lines. (See Fig. 9.) One man staples all cases, using an Acme top-and-bottom self-adjusting semiautomatic stapling machine. The different types of packs and products are stacked on pallets for shipment and/or storage.

Operating Personnel

Packaging the six-bar home-packs requires 12 operators. Each of the seven bar wrappers requires one girl to feed candy bars from the enrober into the machine. On the second level, there are four girls to care for the equipment which automatically packages these packs. They are: the panel board operator, an overseer for the seven accumulating conveyors, an overseer for the cartoner infeed conveyor, and a cartoner operator. The automatic case packer requires no operator other than a person who intermittently supplies empty shipping containers.

The operator who closes the shipping containers on the first floor is essential regardless of the type of pack being run. Since he staples all filled cases from all of the packaging lines, the six-bar home-pack takes up only a portion of his time.

(End)

PACKAGING FOR POSITIVE PROTECTION

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► have standardized your adhesive operations,
► use 10,000+ lb./mo. of a single adhesive,
► have space indoors for a bulk storage tank,
► have suppliers to make bulk deliveries.

Bulk adhesive handling cuts operating costs

By E. Patrick McGuire, *Technical Service Manager*
Packaging Adhesives and Specialty Products
Resins and Chemicals Department
The Borden Chemical Company
Division of The Borden Company, New York

The growth of mechanized production and packaging line techniques in recent years has helped the principle of bulk adhesive handling gain increasing acceptance. Management, caught in a cost-price squeeze, is more and more aware of the cost reductions inherent in using bulk adhesive supply systems.

However, before you seriously consider installing a bulk adhesive handling system, you should be sure your use requirements meet the primary conditions for savings. If they do, you can take advantage of the cost reductions they offer.

Examining two case histories* typical of bulk adhesive handling applications should:

1. Give you the necessary data and factors on which to base the analysis of your own adhesive operations.

2. Provide the criteria necessary for deciding whether or not you can benefit by installing such a system.

Five Prerequisites

As you can see from the rudimentary analysis of the two case histories presented, it is possible to effect substantial savings with bulk adhesive handling. However, before you completely accept the bulk handling hypothesis, you should examine the factors which favor the installation of a bulk adhesive handling system.

Some of the primary conditions which should be present *before* you consider installation of such a system include:

1. A minimal monthly adhesive consumption of 10,000 lb. for a single adhesive grade.

2. Standardization of the operation involving adhesive usage. Before installing such a system completely resolve any operation in a developmental stage.

3. Availability of indoor storage area suitable for bulk tank installation.

4. Available adhesive suppliers who can make bulk adhesive de-

Tightening cost-price relationships make you continually analyze your packaging operations so as not to overlook any cost-cutting opportunity. Adhesive handling is one such operation. To help you decide whether you should install a bulk adhesive handling system, Mr. McGuire reviews two typical installations and outlines what you need to make a bulk system effective. He also points out some things to consider in planning a proper installation.

*We fictionalized these accounts to protect the companies involved and to clarify the presentation of each case history.—E.P.McG.

Case History No. 1

This case history illustrates the minimal requirements needed to justify a bulk handling adhesive installation.

The XYZ Canning Co., a large independent food canner in Florida, uses relatively large amounts of case sealing, lap-end, and pick-up gum adhesive in its packaging operations. XYZ packs all of its canned products in corrugated containers whether for shipment to regional warehouses or for storage at its manufacturing plant.

Since the firm does a lot of private label packaging, it needs more than one type of lap-end paste and two variations of hot pick-up gum. However, the company has standardized on a single type of case-sealing adhesive for sealing top and bottom flaps of shipping containers.

Thus case sealing represents the largest single adhesive usage by this firm. Adhesive consumption at XYZ's major installation amounts to 20 55-gal. drums/month—approximately 120,000 lb./yr. This case-sealing adhesive is a 35-per-cent solids borated dextrine priced at a delivered basis of $7.50/cwt.

XYZ gets the adhesive principally from two suppliers. Both have producing plants located within a 150-mile radius of the cannery.

In the spring of 1959, the plant manager, plant engineer, and purchasing personnel of XYZ evaluated the feasibility of bulk adhesive handling and examined the savings involved in such a program. The plant engineer presented the following data regarding the possible installation and use of a bulk system:

Costs Analyses For One Year

Drum Handling Method Versus Bulk Handling Method

(Annual adhesive consumption: 120,000 lb.)

	Drum Method		Bulk Method	
Adhesive	@ $0.0750/lb. =	$9,000	@ $0.0580/lb. =	$6,960
Labor @ $2/hr.	200 man hr. =	600	50 man hr. =	100
Deposits lost*	=	40		—
Installation†		—	=	450
Storage‡	by drum =	200	by tank =	75
TOTAL COSTS		$9,840		$7,585

*Deposits forfeited because of lost or damaged drums.
†Based on installation cost of $4,500 amortized over a 10-yr. perior.
‡Based on sq. ft. floor space occupied.

Note that bulk adhesive handling would save approximately $2,255/yr. This $2,255 saving is a modest estimate in light of the $4,500 allowed for installation of the bulk handling system. Actually, use of a used 20,000-lb. holding tank (rather than a new one) would shave this cost appreciably. Note too how increased consumption would greatly affect the total savings.

Case History No. 2

The ABC Biscuit Products Co., a Midwest producer of a large line of bakery products including cookies, cakes, and breads, has four major production points. The largest of these recently completed an adhesive evaluation program designed to eliminate the costly use of a number of specialty adhesive grades. Its major packaging uses involve tray forming, overwrapping, carton closures, and sealing of shipping cases.

The production department, after extensive testing, showed that a single adhesive formulation was well suited for most of its packaging operations. Results of these tests led the company to standardize on a single grade of adhesive—an extremely versatile (i.e., multipurpose) polyvinyl resin containing a minimal amount of extender—for all of its packaging operations.

Total usage of this all-purpose adhesive (supplied at a viscosity of 2700 cps) was 60 55-gal. drums/month—about 360,000 lb./yr.—ordinarily supplied in 20,000-lb. truck-load quantities at a delivered price of $23/cwt.

In early 1960 the engineering department investigated the possible installation of a bulk adhesive handling system and presented this cost comparison to management:

Costs Analyses For One Year

Drum Handling Method Versus Bulk Handling Method

(Annual adhesive consumption: 360,000 lb.)

	Drum Method		Bulk Method	
Adhesive	@ $0.2300/lb. =	$82,800	@ $0.2175/lb. =	$78,300
Labor @ $2/hr.	2000 man hr. =	4,000	200 man hr. =	400
Installation*		—	cost/yr. =	900
Storage†	by drum =	500		—‡
TOTAL COSTS		$87,300		$79,600

*Based on installation cost of $4,500 amortized over a 5-yr. period.
†Based on sq. ft. floor space occupied.
‡No floor charge for an overhead or sunken tank.

Comparing the two methods shows a saving of approximately $7,700/yr. of operation. Note that the installation cost in this instance was depreciated over a shorter time span—five years instead of ten. Use of a resin adhesive imposes greater corrosion and cleaning problems than the borated dextrine adhesive illustrated in the first case.

Also note that in Case No. 2 we allotted more man hours to labor costs in the bulk handling estimate. This provides for the differential in time required for cleanup operations, etc., by use of a water-resistant resinous emulsion adhesive.

The interplay of plastics and packaging

A complex of technology and art, packaging has gained from the versatility of plastics. The adaptation of Tenite plastics to packaging functions holds promise for improvements in other product fields.

The egg and the coconut, cited in offhand discussions as being ideally packaged for their environments, seem ill-fitted to the complicated methods of modern distribution. The eggshell, unfortunately, can do little more than hold the egg together in the nest. And the coconut, for all its ability to float across the sea to a friendly beach, might be improved by a tear-tape.

A package today must perform several functions beyond mere containment—one reason why plastics have become so popular with package designers. Man-made, plastics can also be man-tailored. For example, Eastman's laboratory has developed twenty-six formulations of Tenite Polyethylene for extrusion into packaging film alone, combining such variables as stiffness, gloss, transparency, and the ability to be heat-sealed on high-speed machines.

Protecting the packaged contents is an obvious essential, and plastics perform some remarkable protective functions. A hypodermic needle in a molded polyethylene container stays both sterile and sharp in its heat-sealed package, which also holds the needle firmly to protect against impact damage [1]. Since polyethylene is impervious to moisture vapor, a polyethylene coating on paper will protect frozen foods from "freezer burn" caused by loss of moisture. Some products even need protection from their packages. For example, the multi-wall paper bags Eastman uses for shipping polyethylene have an inner coating of Tenite Polyethylene to prevent contamination of the product by paper fibers [2].

Packaging for movement and storage is a step beyond protection, and here the light weight of plastics is important. Polyethylene, for years the lightest solid plastic (it floats on water), has yielded in this respect to polypropylene. Drums for chemicals are molded of Tenite Polyethylene not only because it is highly inert and withstands impact, but because the light weight

means shipping economy [3]. Special formulations of both Tenite Polyethylene and Tenite Polypropylene resist stress-cracking, a phenomenon occurring when a material is under stress in the presence of a chemical that normally does not affect it. Tenite Polypropylene shows remarkable resistance to repeated flexing. Because laboratory test bars have been flexed over a million times without cracking, it is said to have a "built-in hinge."

Even the preparation of food servings has come within the purview of plastic packaging. The heat resistance of Tenite Polypropylene suggests its use as film for the boilable cook-in pouch. Another Eastman plastic, Tenite Polyester, is made into a film bag in which corn, oil, and salt are sealed, to be popped later under three minutes of heat from infra-red lamps.

The mechanics of packaging challenge any material, and the adaptability of plastics is a special virtue. In fact, their capabilities have helped advance package design, as in the case of blister packaging—plastic sheet thermoformed to fit the contents and attached to a cardboard backing. With Tenite Acetate, Eastman helped to pioneer this packaging method, which also employs Tenite Butyrate and Tenite Propionate today.

All together, Tenite plastics include formulations to be molded, extruded, or applied as coatings to other packaging materials; to be printed, heat-sealed, or laminated. Where color is important, Eastman can supply over 42,000 colors and effects from its color laboratory [4]. And along with all their other advantages, these plastics have proved economical—a governing factor in the acceptance of a material in the packaging field.

Continuously adapting Tenite plastics to the shifting technology of packaging has given Eastman a fund of information and materials useful in the design of other products. Thus, the stress-cracking resistance of polyethylene makes it practical for pipe to convey chemicals; the moisture resistance of polyethylene led to its use in coating burlap for Army Ordnance huts to protect stored equipment; the easy formability of sheet of Butyrate makes it practical for a miniature planetarium [5].

We'll be glad to show you how the people at Eastman, with ingenuity and experience, can make plastics fit your ideas for product improvements or new developments. And for a comprehensive picture of Tenite plastics in packaging, get the 20-page booklet "TENITE PLASTICS VIEWS—PACKAGING" by writing to EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

1

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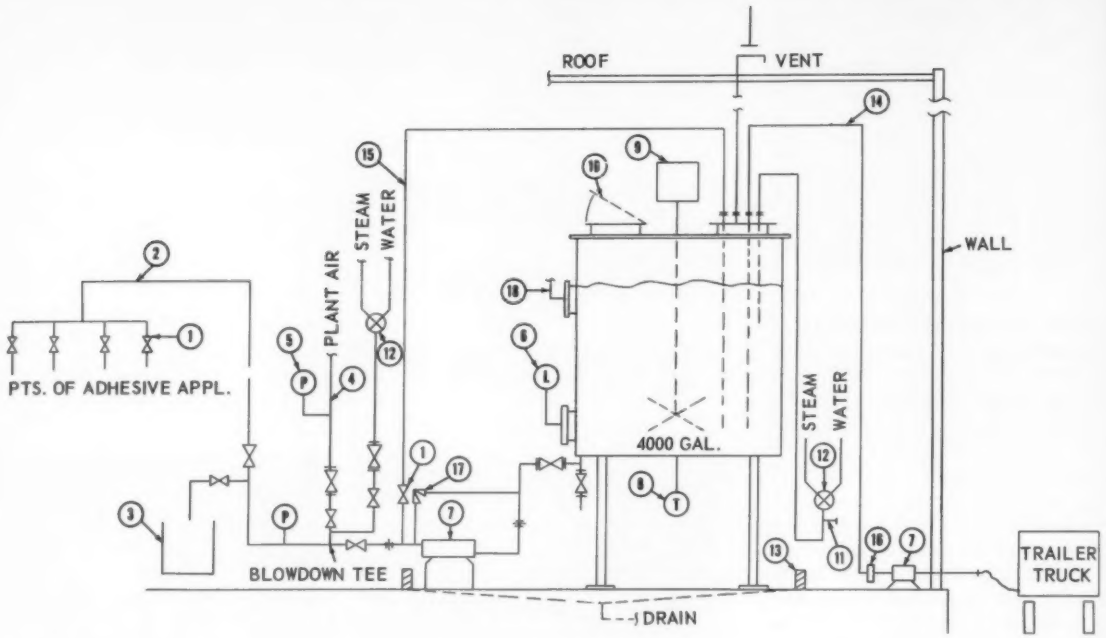

LEGEND:

1. NEEDLE VALVE
2. FEED LINE
3. EMERGENCY
4. PLANT AIR BLOW DOWN LINE – CARBON STL.
5. PRESSURE GAUGE
6. LIQUID LEVEL
7. MOYNO AND/OR METERING PUMP
8. TEMP. INDICATOR
9. AGIGATOR
10. MANWAY
11. HOSE CONN.
12. MIXING NOZZLE
13. CURBED AREA
14. TRANSFER LINE – TRUCK TO TANK
15. BY-PASS
16. DUPLEX STRAINER
17. PRESS. RELIEV VALVE
18. HIGH LEVEL CUTOUT FOR TRAILER TRUCK UNLOADING PUMP

Fig. 1—Typical bulk adhesive handling system

liveries. Select them and test their products thoroughly.

5. The adhesive must be suitable for bulk storage. Analyze these storage characteristics thoroughly.

This list does not include all the factors, but it does cover the important ones and should serve as a general guide for any preliminary consideration of a bulk adhesive handling system.

Points Of Caution

If the above factors are present, you should seriously consider bulk adhesive storage and use. In some instances, however, your plant design and layout may discourage the possibility of bulk storage and automatic pump transfer. This is particularly true in situations requiring a lot of piping, such as in a multi-story plant. In such a case installation costs alone would be prohibitive.

The equation providing the proper bulk adhesive handling system is complex, tempered by such basic considerations as (1) corporate finances; (2) design conceptions of the engineering group; (3) type and amount of adhesive consumed; and (4) other very individual factors. Nevertheless, here are some general points your management must weigh in arriving at a proper bulk adhesive installation design.

Put Tank At Use Point

Ideally you should locate the bulk storage tank at a point adjacent to the area of adhesive use but also reasonably close to the bulk unloading area. Generally you have to compromise since these two locations are not always near each other. If you must compromise on the bulk tank location, we recommend putting it near the point of use.

Another point is whether you should locate the tank on the same floor as adhesive use or on a floor above the point of use and thus have a gravity flow. Generally it is preferable to locate the tank on the same floor as the adhesive consuming equipment. Such an arrangement gives you better supervision and control of the entire adhesive operation and gives the people tending the line easy access to the tank for inspection.

You should install the adhesive storage tank in an area free from extremes of heat or cold. If you place it directly against an outside wall, insulate the tank. Sharp variations in temperature drastically affect the efficiency of many adhesives.

Choice Of Pump

The selection of a pump depends largely on the volume of flow you

require and the basic characteristics of the adhesive. In the latter respect, your design engineer must concern himself with the viscosity of the material to be pumped, the effect of pump shear on the adhesive system involved, and the access of the pump parts to periodic cleaning. You might also consider whether you want metered pumping, intermittent flow, or a constant head of pressure on the adhesive lines.

Some adhesive materials are more susceptible to the effects of mechanical shear than others. For example, some resin emulsions break completely when subjected to the shear imposed by a simple gear pump.

For these adhesive types, Moyno or diaphragm pumps generally prove more suitable. It is desirable to have the adhesive evaluated on the pump you are planning to buy. If you cannot do this, get your adhesive supplier's recommendations on pump selection.

Picking Tank Materials

It is axiomatic that the corrosive properties of the adhesive you use determine the materials for tank construction. A material such as Type 304 stainless is ideal for a tank-lining material—from a corrosion-resistant standpoint—but this might prove too expensive. On the other hand, you might find that a used glass-lined tank or an epoxy-coated steel tank is adequate.

We have seen installations involving 20,000-lb. capacity wooden tanks which stood up admirably. The point is that your selection of tank materials ultimately depends upon the demands of the adhesive plus cost limitations.

Make Cleaning Easy

Fig. 1 illustrates a typical bulk adhesive handling system. Note the complete and easy access to the adhesive bulk storage tank. This is highly desirable to provide adequate and efficient cleaning. If possible you should have live steam and water rinse connections on all installations.

You should provide physical access through ports so that the workers can enter a drained tank. You should also have drain connections beneath the bulk tank to accommodate cleaning work. You may also need a small auxiliary tank for adhesive transfer while the main storage tank is being cleaned.

Plan For Control

It is surprising how many bulk adhesive handling installations are completed without proper regard to the accessory instrumentation needed to control the over-all operation. Even the simplest installation should provide instrumentation to indicate the fluid level of the adhesive (in gallons), the temperature of the adhesive, and the operating pressure on the adhesive supply lines (in lb./sq. in.).

In addition, you should also allow for visual observation of the tank interior—through windows, ports, etc.—so you can check for possible excess foaming, curd formation, skin formation, etc.

What You Can Save

Bulk adhesive handling offers users potential cost savings in four areas:

1. Lower base cost per pound of adhesive consumed.

2. Reduced labor costs—fewer man hours needed for bulk handling methods than to transport drums manually to various points of consumption.

3. Lesser floor space requirements for a bulk storage tank than that needed for large numbers of adhesive drums.

4. Eliminates loss on drum deposits forfeited for lost or damaged drums.

However, before you seriously consider installing a bulk adhesive handling system, you should first be sure your use meets the primary conditions for savings—such as volume consumption, adhesive standardization, adequate storage area, available suppliers, and suitability of your adhesive for bulk storage and handling. *(End)*

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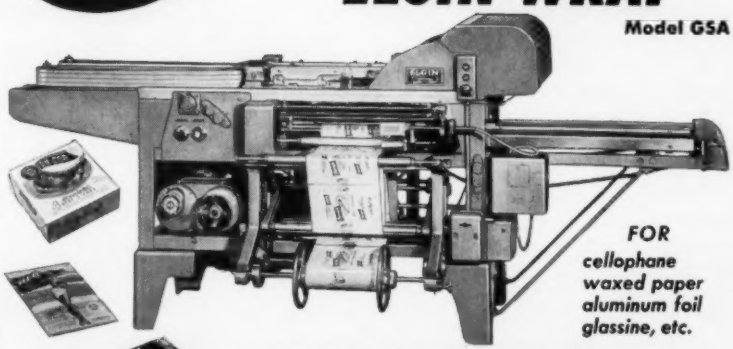

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In-plant box shop cuts costs, avoids short order woes

By Paul W. Watt
Superintendent of Factory Services
The B. F. Goodrich Company
Akron, Ohio

Making our own low-volume corrugated shipping boxes substantially reduces our production costs —about $20,000 annually. Five major items contribute to this saving:

1. Lower cost per box.
2. Less storage space needed.
3. Less money tied up in materials on hand.
4. Simpler inventory control.
5. No writing off of obsolete materials.

Before we started making the boxes we use in small quantities, we did a thorough study of all low-volume boxes to determine if such an operation would be economical.

Form Aids Evaluation

Using the actual costs of boxes ordered and received prior to that time, we calculated what it would cost to make these boxes in our own plant. Fig. 1 shows the form we developed for this purpose.

In this example, note that different quantities of this particular box came from three different suppliers. By extending the price per 1,000 boxes and each supplier's setup charge, we obtained the total cost for the actual quantity we bought. Note the "department revenue" cost. Our cost accounting showed that the cost of receiving and transporting incoming boxes within the plant averaged 4 per cent of the total cost of the boxes. Adding this 4 per cent to the total cost gave us the "total outside cost." From this last figure, we determined the cost per box of a particular type and size.

Find "Making" Cost

To find what it would cost to make this box ourselves, we used the lower half of the form. First we entered the tape cost; next the cost of the board needed for one box. This figure is the cost of buying the board already cut to blank size.

Next we entered the manufacturing cost. This included all overhead, burden, labor, and other departmental costs. The total of these three costs was the cost per box to make it ourselves. When the outside cost per box was greater than the inside cost per box, the difference was the saving per box if we made it. When the costs were the other way around, then we knew it was not profitable for us to make that box.

No matter how eagerly or reluctantly corrugated box manufacturers accept orders for small quantities or diverse runs, the prospect of "do-it-yourself" frequently intrigues users of wide ranges of boxes. The knack of doing this advantageously lies in knowing just what to buy from suppliers and what to make for yourself. Mr. Watt outlines some pointers useful in making such decisions and shows how to operate an in-plant box shop effectively.

Wide Range Of Boxes

We make about 550 different boxes. These boxes are mostly RSC style (i.e., regular slotted containers), but quite a few are CSSC (center special slotted containers), FFSC (full flap slotted container), HSC (half slotted containers), and telescope styles.

Our boxmaking operation uses 10,000 sq. ft. of floor space. This includes room for all equipment and storage space for board. The boxes we buy from outside box manufacturers take up 20,000 sq. ft. of space.

Before we started our boxmaking operation, all of our boxes normally on hand took up 40,000 sq. ft. of space. Thus, we have saved 10,000 sq. ft. of space which other departments now use more productively. Since each department is charged with the space it uses, this reduction in floor space means less charges for the various production departments using boxes.

Another factor which contributes to our saving is one which often is overlooked. This is "money tied up in materials on hand." Our boxmaking operation lets us cut down our stock of materials.

The average box we make takes about 11 sq. ft. of board. The average total cost to make the boxes is $0.15 per box.

The amount of board on hand for the boxmaking operation has an average value of $7,000. Previously, when these boxes were bought and stored, the value was $21,000. The $14,000 difference is our saving in investment. While not a net saving, its effect is to free money for use elsewhere.

Normally, we take an annual rather than a monthly inventory of boxes. Making so many of our boxes reduces the time involved in taking the annual inventory. This is because our departments order from the boxmaking department only what they need for a short time.

Hold Down Orders

When the end of the year is approaching, the departments usually order just enough boxes to carry them through December. During November and the first part of December, our boxmaking department's "business" drops—because all our departments are cautious about having too many boxes on hand at inventory time.

When we bought all our boxes, each department ordered quantities it calculated it would need for a given period, e.g., three months. Boxes often became obsolete before use—due to a product change, for example. There was nothing to do but write these obsolete boxes off the books.

With our departments ordering what they need for a week or so (perhaps a month), there is little

Box Cost Comparison

Size 22" x 21" x 15" — Date 6/22/61
Type R.S.C. — Box No. P-1806-59
Board 275-lb Test, C-flute — Annual quantity 2,000
Inner parts None — Quantity this purchase 500

Outside Cost:

No. Boxes Purchased	Supplier	Price/1,000	Set-Up Charge	Box Cost	Set-Up Cost	Total Cost
200	A	586.40	15.00	117.28	15.00	132.28
150	B	552.65	15.00	82.90	15.00	97.90
150	C	554.20	15.00	83.13	15.00	98.13

Total cost 328.31
Dept. revenue (4% of total cost) 13.13
Total outside cost 341.44

Recap: $ 341.44 for 500 boxes gives cost per box = $ 0.6829

Boxmaking Department Cost:

Tape cost per box = $ 0.0053
21.99 sq. ft. @ $ 19.55 /1,000 sq. ft. = board cost per box = $ 0.4219
_____ sq. ft. @ $ _____ /1,000 sq. ft. = board cost per box = $ —
Dept. mfg. cost per box = $ 0.0900
Total dept. cost per box = $ 0.5172
Saving per box = $ 0.1587

1 FORM AIDS COST EVALUATION. Upper portion gives cost for quantity purchased from one supplier; add set-up cost for total cost. Add department revenue to all total costs for total outside cost. Subtract in-plant cost/box from outside cost/box for saving per box.

2 BOXMAKING MACHINE OPERATOR has responsibility of setting up equipment and feeding blanks (left photo) which pass through machine (right photo) and discharge into company-made accumulator. (See Fig. 4.)

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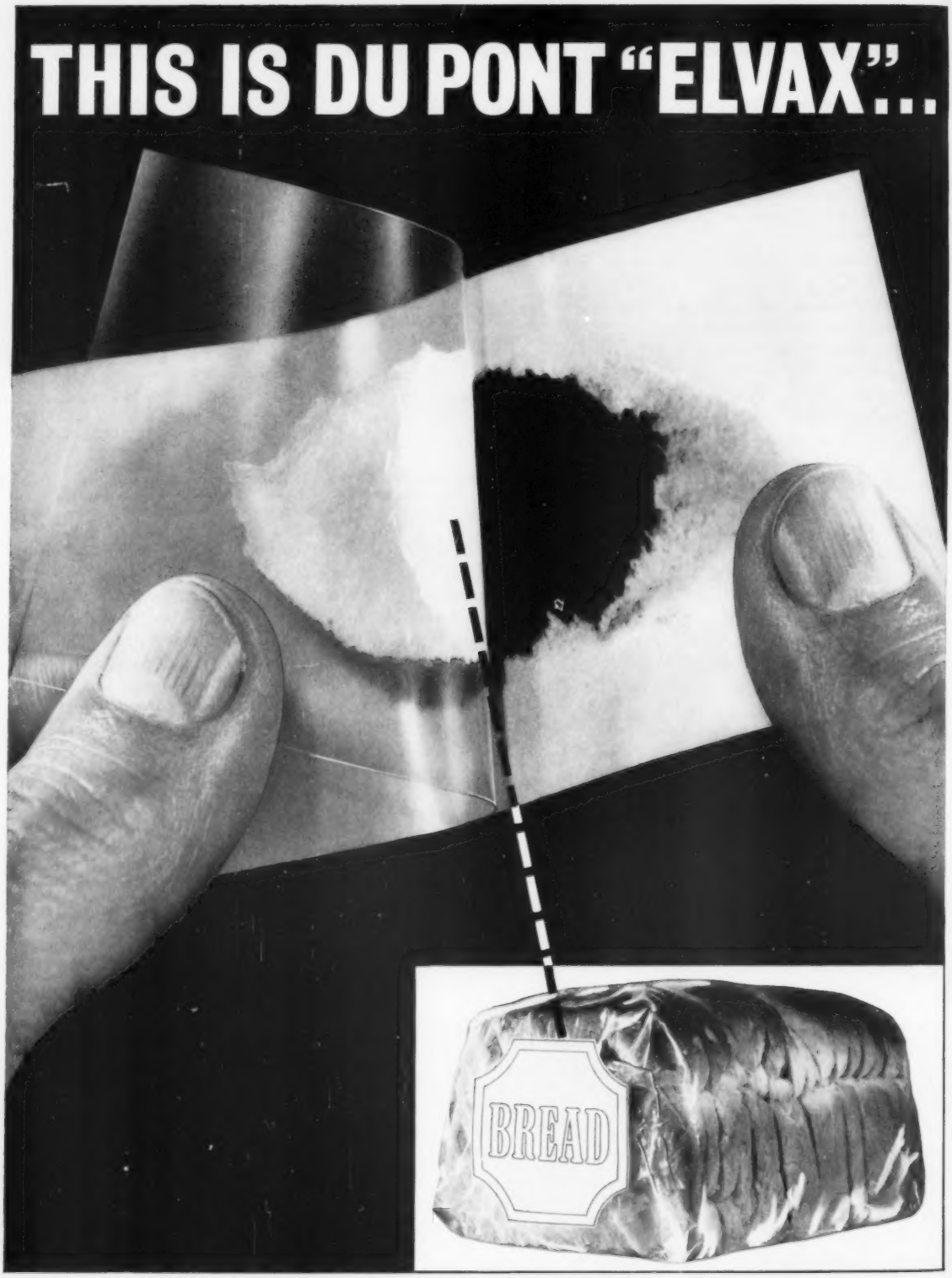

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Flexible, tough adhesive bonds are obtainable using "Elvax" alone or blending it with waxes, resins, rosins or rosin derivatives. Hot-melt, solvent and pressure-sensitive adhesives based on "Elvax" adhere tightly to all films used in packaging. For example, bread end labels, such as the one shown at the left, can be securely affixed to polyethylene bread wraps with low-cost, hot-melt adhesives based on "Elvax". This is just one of the many product improvements made possible by new Du Pont "Elvax". Other applications include: improved coatings for frozen-food overwraps, waxed glassine, waxed cartons . . . wherever low-cost, heat-sealable coatings with excellent water-barrier properties are required.

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3 TAPE-SETTER OPERATOR sets tape on manufacturer's joint. Roller type table in front of machine raises and lowers so operator can keep box on top of stack at convenient level.

risk of having obsolete boxes on hand. Since we started our boxmaking operation, we have not written off any obsolete boxes. This is another contribution to our annual saving.

Start To Make Boxes

Our initial investment for the boxmaking operation was about $49,000. This was for all of the equipment: a Rite-Size boxmaking machine, a tape setter, a slitter-scorer, a bandsaw, plywood saw, and other small hand tools—and for remodeling the boxmaking area—installing new lights, new floor, painting, etc. Thus our annual saving of $20,000 offset this in about 2½ yr.

When one of our box-using departments needs a new box, the packaging department prepares the specification and sends it to the boxmaking department, which is a part of the factory services division. The foreman of the boxmaking department determines if it can produce this new box. He indicates this on the spec. Then a copy of the spec goes to the purchasing department, which gets quotations from several suppliers. We then decide whether to make this box or buy it from a box manufacturer.

Note Of Caution

One problem can arise when making this decision. We keep it in mind when deciding whether or not we should make the particular box. Here it is:

To take advantage of truck-load lots (to save on shipping costs of boxes ordered from suppliers), the purchasing department obtains from each supplier its prices for a number of different types and sizes of boxes—small quantities of each—to make up an entire truck load.

One supplier's price for a particular box may be a little less than another's when included with other types of boxes to make a full load. Further, the price for a given box from the first supplier may be higher than that of the second supplier for this box.

However, because of quantities, types of boxes being ordered, shipping dates, etc., it may be that the buyer must order from the supplier whose price is higher. So, in deciding whether to make a box or buy it from a supplier, we watch the quotations closely.

Two Key Factors

The quantities we need of a given box and the amount of board the box requires are the two key factors governing our decision to buy on the outside or make the box. We have found that if a box uses 6 sq. ft. of board or less, it is profitable for us to make the box in any quantities up to 1,000. At this quantity we reach our break-even point. If a box takes 14 sq. ft. or more, our break-even point rises to 3,500. By interpolation, we find the break-even points for boxes in between.

What Crew Does

The boxmaking department has five people. There is a foreman in charge of it. He does all of his own scheduling, orders all board (that is, he signs the requisitions and forwards them to the buyer), and receives the board. He is responsible for making and delivering boxes to the various departments needing them.

The other people include an operator for the boxmaking machine, one for the tape setter, one utility man, and one man for handmade boxes. The boxmaking machine operator's duties consist of setting up his machine and feeding the blanks to it. (See Fig. 2.)

The tape-setter man is likewise responsible for setting up his machine, applying tape to the manufacturer's joint, and feeding the finished box into the pressure rolls of the machine. (See Fig. 3.) The

Paul W. Watt started working at Goodrich on the production line. Before assuming his present position, he did clerical work, scheduling, time study, and was foreman, general foreman, and manager. As superintendent of the factory service division, he is in charge of many operations, including materials receiving, raw materials warehousing, corrugated box manufacturing, shipping, wooden box shop, and print shop.

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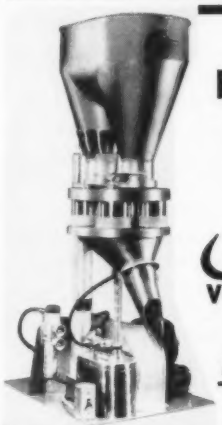

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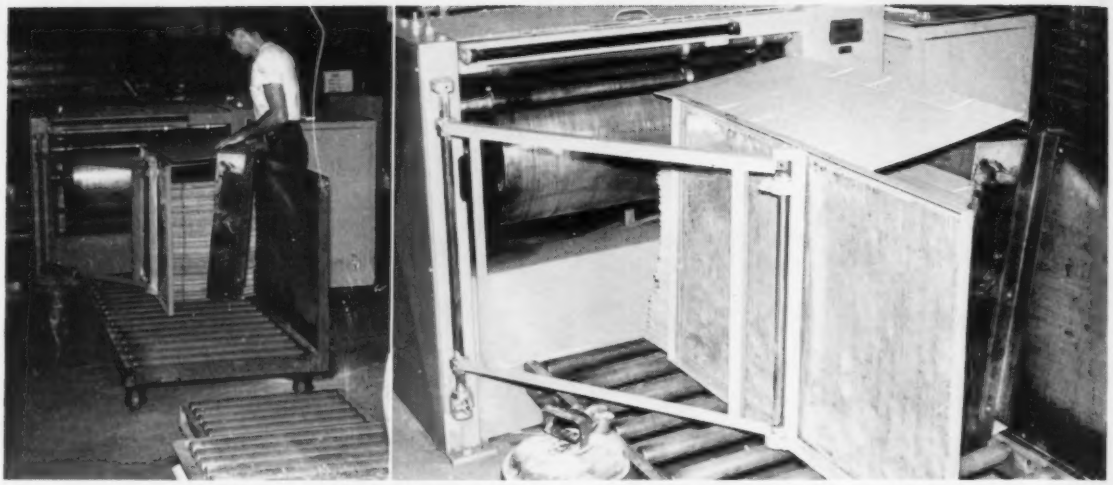


4 REMOVING FINISHED BLANKS, among other duties, is utility man's responsibility (left photo). Using accumulator, he "rolls" supply of blanks to tape-setter operator. In right photo, note box blanks emerging from boxmaker and just ready to drop into accumulator adjusted for that size blank.

utility man does such work as supplying the raw blanks to the boxmaker operator, removing finished blanks from the discharge end of the boxmaker unit (see Fig. 4) and then supplying them to the tape setter and removing finished boxes at the discharge end of the tape setter.

Tape All Boxes

Incidentally, we tape all of our boxes. Stitching them would slow down our operation about 25 per cent, due to having to put the fourth cut in the blank for a stitch.

The fifth man is responsible for making all inner parts plus any extra large or unusual types of boxes which we need in small quantities, and which the boxmaking machine does not handle. For this work he uses the slitter-scorer, a plywood saw, a bandsaw, and other miscellaneous small hand tools. (See Figs. 5 and 6.)

He lays out the blank, then slits and scores the number needed. For slotting large blanks, he uses the plywood saw; for small blanks, he uses a small hand slotting tool or the bandsaw. He uses the bandsaw for many of the inner parts (i.e., interior packing), especially some of the odd-shaped ones that come up in certain orders.

Speed Of Production

In our present operation, these five men make about 210 different types or sizes of boxes per month. The average speed is 450 boxes per hr., which includes an average of 12 machine changes per day. It takes about ten days for a production department to get boxes from the boxmaking department *if* the blanks for a given box have to be ordered. If the blanks are in stock, it normally takes two to three days. If there is a rush order, the crew can get it out in minutes.

5 SLITTING AND SCORING blanks for size boxmaker will not handle, this man also makes all inner parts. Lines guide operator when slotting blank. (See Fig. 6.)

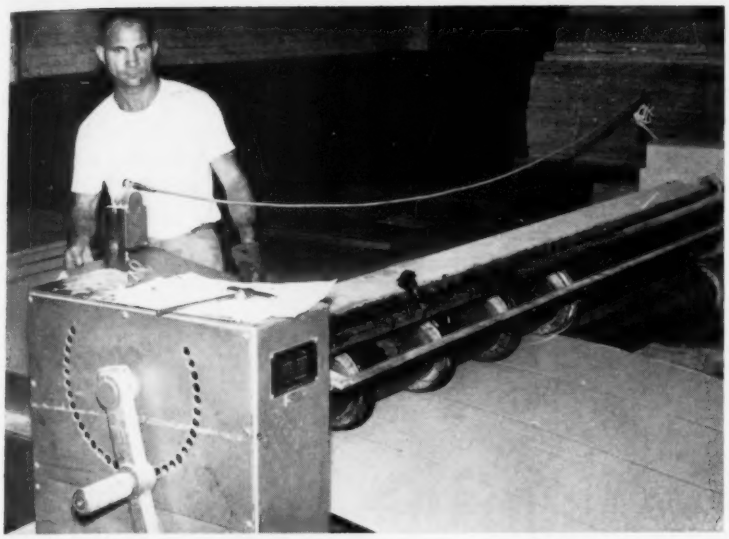
The maximum size blank our Rite-Size boxmaking machine takes is 36x108 in. However, for some boxes requiring a longer blank size, we run the box through the machine as two halves. Then we tape the two halves together forming two manufacturer's joints.

Delivering the boxes from the boxmaking department to the various production departments is the job of the intraplant transportation department. All delivery costs are charged back to the boxmaking department, but this is included in the department's manufacturing cost.

Plan For Box Flow

When we installed the equipment, instead of putting the boxmaking machine close enough to the tape-setting unit for it to discharge directly to the tape-setter operator, we spaced the two machines far enough apart to allow for an accumulating unit. We built this to fit at the discharge end of the boxmaking unit.

With the accumulating unit, the tape-setter operator does not have to be on hand taping the blanks just as they come from the boxmaking machine at a given mo-



6 **SLOTTING EXTRA LARGE BLANKS,** operator uses conventional plywood saw; for smaller ones, he may use hand slotting tool or bandsaw which he uses for many inner parts.

ment. In fact, he can be taping blanks other than those coming from the boxmaker.

The portable part of the accumulator (see Fig. 4) consists of a section of roller conveyor mounted on casters. Along one edge of the conveyor and perpendicular to it is a stationary solid metal "side."

The other part of the accumulator consists of a swinging "side" mounted to one side of the discharge end of the boxmaking machine. The "swinging" feature allows us to set the space between the two sides to the height dimension of the blank.

How Accumulator Works

In use, we place the portable section of the accumulator at the discharge end of the boxmaking machine so that the stationary side lines up with one edge of the blanks as they come from the machine. We then push the swinging side in over the roller conveyor bottom and lock it in place so that the distance between the stationary side and swinging side is the same as the height of the blanks being run.

The blanks from the boxmaking unit come out over the accumulating unit and drop into it. When the accumulator is filled, the utility man rolls it a few feet to another short roller conveyor anchored to the floor just at the left of the tape-setter operator's station. The utility man then rolls the stack of blanks onto the short conveyor where the pads are handy for the tape-setter operator. If the latter operator is taping blanks other than those coming from the boxmaking machine, the utility man then rolls the accumulating unit (when filled) away from the boxmaker and sets it off to the side.

In front of the tape setter there is another roller-type table which the operator can raise and lower. This table holds his supply of blanks for taping. When the supply runs out, the operator lowers this table to the level of the short roller conveyor to his left, slides more blanks onto the table, and then raises it to working level. Next he resumes taping of blanks.

Although making many of our own boxes is profitable for us at our Akron facilities, we do not necessarily recommend it to every company using many different types of boxes in small quantities. At some of our other plants this type of operation does not work. In any case, a study of comparative costs should help you reach a decision on the question. (*End*)

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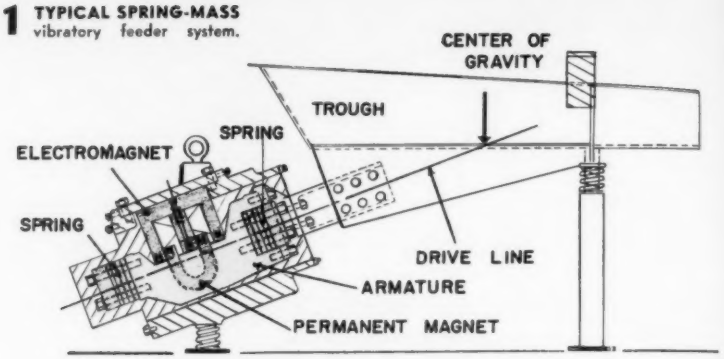
1 TYPICAL SPRING-MASS vibratory feeder system.



Getting the most from vibratory feeders

By R. J. Torrey
Manager, Research & Development
Eriez Manufacturing Company
Erie, Pennsylvania

Vibratory feeder equipment—properly designed and applied—can assure operating benefits that will pay dividends throughout the life of the installation. Too often, however, user misconceptions regarding the design, function, and use of vibratory feeders lead to malfunctioning of the equipment, costly breakdowns, and unnecessary maintenance.

Avoiding these pitfalls requires a knowledge of the basic principles of vibratory feeder design* as well as an understanding of the operating characteristics. Thus the observations in this article together with suggestions for proper operation should be of real value in helping you get maximum benefits from your vibratory feeder equipment.

*Editor's note: Vibratory feeders of the leaf-spring type—their operating characteristics, components and basic principles of operation—were discussed by Richard P. Lubold in "There is no mystery about vibratory feeding," PACKAGE ENGINEERING 5:5, May 1960, pp. 58-66.

Using Vibratory Feeders

Vibratory feeders convey materials of a dry, free-flowing nature from one position to another—for example, to a filling machine. Generally the distance involved is not more than 8 ft. You can also use vibratory feeders to change the material's course of flow (e.g., from 90° to 180°).

You can operate a properly designed feeder system for long periods of time without maintenance—even if the system is a departure from standard factory units. Generally speaking, departures present no problems if the unit is properly designed or the system properly engineered. If not, however, it can present serious problems.

Most problems develop when users alter units to get more output, extra tray length, width, or height, or to meet some other special requirement. Relating what vibratory feeders are to how they work shows you why and how altering feeder components can lead to trouble.

It takes a clear understanding of vibratory equipment in packaging operations to get maximum benefits from it. Mr. Torrey reviews basic principles of operation, components of a system, and operating characteristics of vibratory feeders of the mass-spring type. His observations suggest how to avoid malfunctions, costly breakdowns, and also unnecessary maintenance of equipment.

Spring-Mass Feeder

Equipment of this type consists of moving and fixed components. These have four basic elements:

1. Moving mass (moving components) generally includes the tray or trough, force arm, and armature.

2. Reaction mass (fixed components) includes the base, spring system and electromagnetic exciter.

3. Spring system (part of the reaction mass) is made of steel or fiber glass.

4. Electromagnetic exciter (also part of the reaction mass) supplies force to energize the system.

A typical spring-mass vibratory feeder system appears in Fig. 1. In this system an AC electromagnet assisted by the springs attracts and repels (alternately) the spring-mounted mass.

Note that the poles of the permanent magnet (Fig. 1) are intermeshed in the air gaps of the electromagnet, eliminating the need for a rectifier.

Polarity of the permanent magnet is fixed, whereas polarity of the electromagnet alternates at the line frequency. Fig. 1 shows polarity of the electromagnet as it would appear at 90° of the sine wave. Both poles of the permanent magnet are simultaneously being attracted by unlike electromagnetic poles and repelled in the same direction by like electromagnetic poles.

Needed Stiffness Values

This results in four forces accumulating to drive the armature in the same direction. As the polarity of the electromagnet changes, all the forces are reversed, and the permanent magnet armature is driven in the opposite direction. This provides the amplitude of vibration and ultimately the trough movement.

The front and rear springs are fastened at their ends to the reaction mass and are secured at a central point on the armature as a connection to the moving mass. The positioning of the springs is important: it governs the direction of trough movement through the line of spring action.

The natural frequency of this system is equal to the square root of the ratio K/M_o, where K is equivalent to spring stiffness and M_o the ratio of moving mass to reaction mass.

Therefore, you need to use springs having a stiffness value, or *energy storing value*, sufficient to carry the tray and its load (moving mass) as well as maintaining the relationship of the reaction mass to the moving mass.

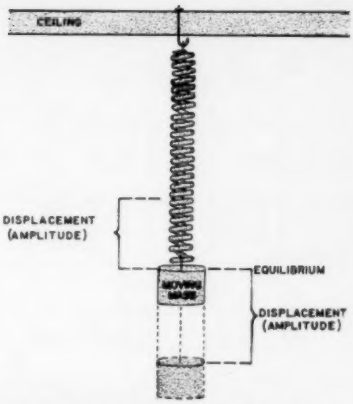
This relationship is derived as the ratio of moving mass weight to reaction mass weight. The mass relationship is usually 3 to 1 between moving and fixed parts.

What Happens To Springs

The following analogy may clarify the spring-mass principle of vibratory feeders for you. A spring is suspended from the ceiling with a weight attached to the spring. (See Fig. 2.) The weight represents the moving mass; the ceiling and spring, the reaction mass.

If you strike the bottom of the weight with a hammer (exciter), you cause it to move up and down in a straight line with a vibratory motion. The number of complete vibrations made by the weight in 1 sec. is the frequency of vibration. After the last vibration, the weight comes to rest at a position it had before the hammer blow.

If you added additional weights *without* increasing spring stiffness, the spring would stretch. It would not be capable of the *same* frequency. The same hammer blow could not excite the same amplitude as it did with the original weight. The increased weight of the moving mass prohibits its return to the original position. This same situation is evident when you add extra mass to the tray of a vibratory feeder.



2 SPRING-MASS PRINCIPLE is analagous to spring suspended from ceiling.

Make Changes Cautiously

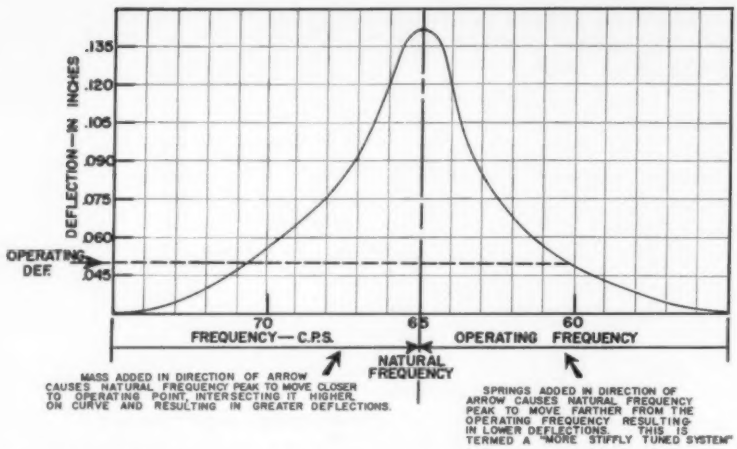
Similarly, if you change the spring system to a weaker or stiffer spring but keep the same moving mass, you also change the natural frequency. Fig. 3 demonstrates this point. It shows that alterations of mass or springs change the natural frequency. Lowering the natural frequency to a point close to operating frequency usually causes control difficulty.

Even though most vibratory feeder equipment has a built-in safety factor span on the cyclic scale (as shown in Fig. 4), you lower the operating efficiency of the feeder if you make any drastic changes in mass. Therefore, you should not alter the mass without first checking the specifications for the particular feeder involved.

Feeder Tray Design

Feeder trays or troughs may be flat, tubular, half-round, V-groove, channel shaped, etc., depending

R. James Torrey has an International Correspondence Schools diploma in chemical engineering. He also studied electrical engineering, economics, and business administration at Gannon College. Mr. Torrey was with Talo[illegible] for 14 years and with Louis Marx Co. Inc. for five years. At both companies he worked on special machinery and developed and designed mechanisms. Since joining Eriez some four years ago he has been involved with the study and development of tuned mechanical systems and electromagnetic devices.


DEFLECTION—IN INCHES
.135
.120
.105
.090
.075
.060
.045
OPERATING DEF.
70
FREQUENCY—C.P.S.
65
NATURAL FREQUENCY
60
OPERATING FREQUENCY
MASS ADDED IN DIRECTION OF ARROW CAUSES NATURAL FREQUENCY PEAK TO MOVE CLOSER TO OPERATING POINT, INTERSECTING IT HIGHER ON CURVE AND RESULTING IN GREATER DEFLECTIONS.
SPRINGS ADDED IN DIRECTION OF ARROW CAUSES NATURAL FREQUENCY PEAK TO MOVE FARTHER FROM THE OPERATING FREQUENCY RESULTING IN LOWER DEFLECTIONS. THIS IS TERMED A "MORE STIFFLY TUNED SYSTEM"

3 CURVE SHOWS EFFECTS of adding mass or springs. It does not represent specific tuned system. Added mass detunes system while added springs increase stiffness.

on your feeding problems. Regardless of trough shape, you must keep feeder trays within a limited range for a given size drive unit so that the drive line is the center line through the springs. For most efficient operation, the center of gravity *under load conditions* should fall directly on the drive line. (See Fig. 1.)

This comparison may illustrate the drive line: assume you are holding a fiber glass fishing rod vertically in your hand and moving your hand back and forth horizontally in a straight line. On the reverse motion, the tip of the rod lags and continues in a forward motion for an instant even though the power force is exerting a reverse motion.

Thus we see the result of the moment of the rod from the drive movement of the rod from the drive line to the rod tip. In this case the drive line is centered along the axis of your arm. The same lag in time and motion occurs in a tray when the center of gravity is too high above or too far below the drive line. This results in lost or spurious motion and has a deterring effect on performance.

Altering Tray Design

By altering tray design, you change the center of gravity. This is a common cause of feeder malfunction or complete failure. Some users believe they can alter the feeder tray design (adding length, width, or weight)—compensating by reducing the material load. Actually this is both possible and practical, but only a person experienced in vibratory feeder design should do the reengineering.

By lengthening a standard 4x20-in. feeder tray by 6 in., you add only 15 to 20 per cent additional weight to the unit. However, this added weight is enough to cause malfunctioning of the feeder. Adding the length moved the center of gravity forward by 1 in. If this change caused the center of gravity of the tray to fall in front of or below the drive line, this can cause a negative front-end flip (vertical component of tray motion) which would result in a pile-up of material at the front of the tray. It would also unbalance the tuning of the feeder.

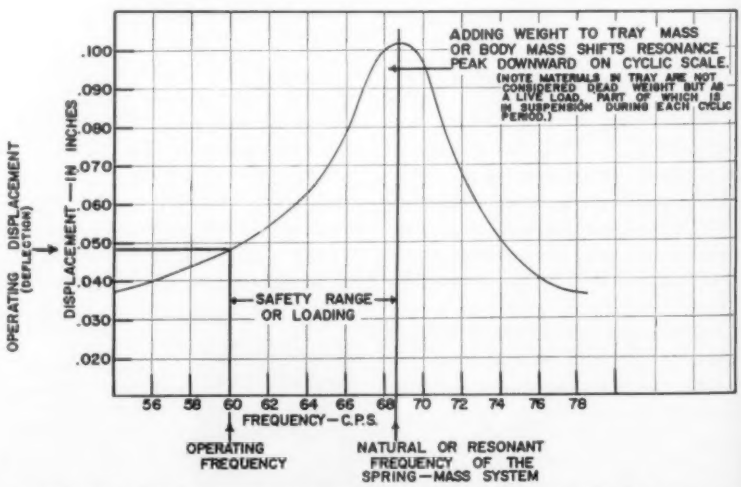
Dimensions are not the only source of difficulty, however. One user of vibratory feeder equipment constructed a feeder tray within the acceptable range of dimensions but did not brace the tray. Thus it did not have the rigid structure necessary for best operation.

The vibratory action of the feeder moved the material along the tray to a point 1 in. from the edge of the tray. Here the material stopped feeding in a forward direction, and material spread on the front end of the tray fed backward to this 1-in. point.

To solve the problem, this user cut 1⅛ in. off the end of the tray. Result: the feeder now moved the material to within ⅞ in. of the end of the tray. Cutting off another inch had a similar result. The real difficulty was that lack of bracing produced spurious or secondary vibrations causing backfeed.

Bracing Important

Bracing is also important from another aspect. A tray providing satisfactory service for a long peri-


ADDING WEIGHT TO TRAY MASS OR BODY MASS SHIFTS RESONANCE PEAK DOWNWARD ON CYCLIC SCALE.
(NOTE MATERIALS IN TRAY ARE NOT CONSIDERED DEAD WEIGHT BUT AS A LIVE LOAD, PART OF WHICH IS IN SUSPENSION DURING EACH CYCLIC PERIOD.)
OPERATING DISPLACEMENT (DEFLECTION)
DISPLACEMENT—IN INCHES
.100
.090
.080
.070
.060
.050
.040
.030
.020
SAFETY RANGE OR LOADING
56 58 60 62 64 66 68 70 72 74 76 78
FREQUENCY—C.P.S.
OPERATING FREQUENCY
NATURAL OR RESONANT FREQUENCY OF THE SPRING—MASS SYSTEM

4 TYPICAL TUNING CURVE FOR SPRING-MASS VIBRATORY SYSTEM. Effects of adding mass or springs reflect on natural frequency point and relative deflections.

od of time may yield (i.e., crack or break) at the reinforcement bar. When this occurs you get a noticeable change in deflection which depends on the point of damage.

Deflection tends to be greater when the break causes a resonant condition. It tends to be less intense when the break causes a separation sufficient to reduce the fixed mass to a point where a balance between spring stiffness and moving mass no longer exists.

More explicitly, only some fraction of the tray is still rigidly connected to the moving mass. Thus the remainder lags as described in the fishing rod analogy.

Detuning The System

Altering the design of the tray may cause detuning of the system. In a detuned system you have to add sufficient spring to bring the system back into balance. However, if the change is too severe, you may exceed the power safety factor, and the unit may then lack sufficient excitation force to operate at a satisfactory level.

Avoid Head Loads

Another bugaboo you should avoid is head load. Manufacturing design of a vibratory feeder system takes into account the load the material in the tray imposes. This is usually in terms of dry sand which has a density of 100 lb./cu.ft.

Some product supply methods use overhead hoppers and chutes which impose head loads of dead weight on the feeder tray. Head loads occurring to a dangerous degree cause a shift in tuning. They may reach a point where you cannot get the feeder to respond to its excitation force because spring values are not strong enough to carry the load.

Always plan for such conditions by having a feeder large enough to compensate for the additional load. It is better to avoid head loads entirely wherever possible. This is not too difficult when you use properly designed hoppers and chutes.

Feed Problems

You must consider the feed problems of each material individually. You need to know the density of the material, structural characteristics, moisture content, and feed rate before beginning operation because certain materials have different sets of feed characteristics.

For instance, consider a material such as some types of Bentonite with densities of 70 lb./cu.ft. In the bin or hopper—under restricted (held back) conditions—the material tends to pack and does not supply the feeder in even units.

On the other hand, if you do not restrict the flow, it will flood out in such volume that the feeder cannot always control the output. You can seldom feed materials of this type satisfactorily by vibratory or mechanical feeders, unless the method of supply to the feeder is controlled so the supply is constant.

When you feed heavy density materials (over 100 lb./cu.ft.), it is well to remember mass ratios. In these cases you specify a heavier feeder than normally used.

Generally, however, the lighter density materials are more easily misunderstood and cause feeder problems. Users feeding heavy density materials are usually cautious in the specifications.

In feeding low-density, light or fluffy material, you cannot expect to feed as many tons per hour as the feeder's rating indicates. The lighter density materials have greater volume; therefore, you must expect a lower output rate since the feeder is rated in terms of dry sand (100 lb./cu.ft.).

Another feed problem arises when you increase the amplitude of the feeder beyond safe limits. This causes premature breakdown of the unit. Get the safe deflection limits for each feeder model from its manufacturer and operate within safe limits.

Feeder Criteria

At the time of its initial design, a feeder must meet certain cri-

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teria to perform efficiently. One criterion is the tuning range—more specifically the difference between the operating frequency and the resonant frequency.

Operating frequency is usually 60 cycles/sec. while resonant frequency may be as high as 80 cycles/sec. (See Fig. 4.) This range (60-80 cycles/sec.) provides the safety factor needed to permit you to feed an exceptionally wide range of material densities (e.g., 40-150 lb./cu.ft.) without having to retune the system.

Another criterion of feeder installation design is that it be free of all impingements. You should not permit an obstruction of any kind to impede the motion of the feeder. Even a slight interruption may relax the stiffness of a feeder spring thus causing unbalance, spring damage, or internal striking. Therefore, if you must operate the feeder in close quarters or if you must equip it with a downspout, then be sure that its movement is unrestricted.

Spring Heart Of Feeder

The springs are among the most important components of a spring-mass vibratory feeder system. They (1) carry the tray and its load; (2) maintain the relationship of the reaction mass to the moving mass; (3) govern the direction of trough movement and line of action; (4) govern the frequency of vibration; and (5) are very important in keeping the system tuned.

For these reasons you must use springs giving exceptionally good performance—long spring life, no deterioration or fatigue, good flexual strength, and corrosion and moisture resistance. Experience shows that laminated fiber glass springs meet all of these performance requirements.

You can operate some vibratory feeders equipped with fiber glass springs successfully under wet conditions. Such commercial units are used in the food processing and chemical industries since they can be washed down at the end of each day's run.

Operating the vibratory feeder in temperature extremes affects the stiffness values of any type of common spring system. For this reason, when engineering the feeder system, consider unusual operating conditions to permit adjustment to temperature varients.

Feeder springs are subject to deflections or stresses experienced while the feeder is operating. To assure the normally long life of feeder springs, you must confine deflections (stress levels) within the range specified by the manufacturer.

Noise Unnecessary

Some users of vibratory feeders believe feeders should make a noise while operating. This is not true. All feeders of the electro-magnetic spring-mass type should operate without metallic sounds or interference. This is essential for efficient and maintenance-free operation. *(End)*

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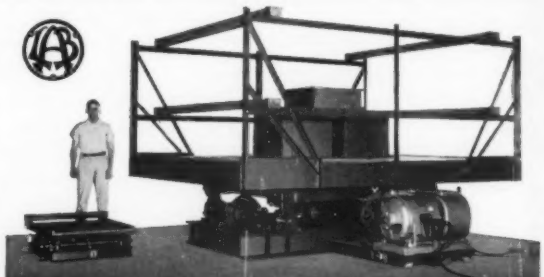

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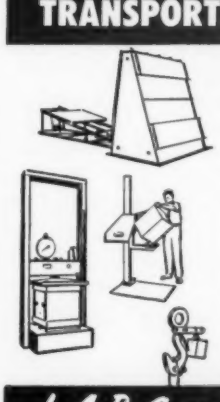

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Researchers see bright future for flexible packaging of freeze-dried and thermally processed food—all stemming from efforts to get better, lighter weight combat rations.

Military needs hike pace of freeze dehydration

Current developments in freeze-dried foods here and abroad as well as progress and problems in flexible packaging for both freeze-dried and thermally processed foods drew the attention of some 400 military and industry people at a recent two-day conference in Chicago. The Research and Development Associates of the Quartermaster Food and Container Institute for the Armed Forces sponsored the meeting.

Those filling the meeting room for this "standing room only" session offered clear impressions of optimism and progress—particularly about freeze dehydration. While some of the speakers tempered their enthusiasm with notes of caution, the military and industry people alike attending the program came away with two distinct feelings:

1. Tremendous progress is taking place in flexible packaging for freeze-dried and thermally processed foods.

2. While there are many difficult problems, these do not seem insurmountable and progress in solving them is at hand.

"While there is still progress to make in freeze drying products, from the military viewpoint most freeze-dried items have already surpassed their canned, thermally processed counterparts," R. L. Graf, associate director, applications and engineering standards, Food Div., QMFCI told his audience.

He said the Institute feels there has been good progress on its new feeding system. It has already developed and field tested 21 quick-serve meals, including a variety of freeze-dried foods. Later this fiscal year it will field test nine uncooked meals, and after that nine more.

He cited two factors deterring significant military procurement of individual freeze-dried foods:

1. Lack of industrial production capability.

2. Unavailability of specifications necessary to assure securing the desired product on a competitive basis.

Market Is Large

"However, industrial confidence in the future of freeze dehydration is now resolving the production capability problem. Further, there is now a steady flow of suitable procurement specifications out of

What's new in packaging for freeze-dried products? What about flexible packaging for thermally processed foods? Seeking answers to these questions, a record crowd attended the Research and Development Associates' military-industry conference. Speakers from the Quartermaster Food and Container Institute as well as from industry reviewed progress in these areas and outlined work yet to be done. Their comments show that the exacting requirements of military rations spur breakthroughs in packaging technology—with commercial implications. The observations of researchers working on these problems for the military deserve the attention of anyone speculating on the commercial application of freeze dehydration.

the laboratories," Mr. Graf said, pointing out that the military would like to see an industrial production capability for freeze-dried foods which nearly parallels that for appropriate canned and thermally processed foods.

Indicating the size of the military market for freeze-dried products, he said that to sustain 100,000 men (about 4 per cent of the 2.5 million men in uniform) for one year on currently available quick-serve meals would take over 9.1 million pounds of meat, poultry and seafoods, nearly 1 million pounds of vegetables and 3/4 million pounds of fruits.

Bring Down Costs

However, he cautioned his audience about estimates of freeze-drying costs—some as low as 2 cents or less per pound of water removed. Existing facilities will not ordinarily provide such low production costs, he explained, adding: "Most currently quoted prices are extremely out of proportion to reality. The military must have lower prices to put freeze-dried products in near competition with canned items." Mr. Graf also observed that high prices could kill the market almost as easily as poor quality could.

"There must be a better economic picture if food companies are to develop a mass consumer market for freeze-dried foods," declared John H. Nair, consultant to the food industry.

Equipment Slow, Costly

Discussing the current status of commercial freeze-dried foods at home and abroad, Mr. Nair noted that equipment necessary for vacuum freeze drying is inherently costly and slow compared to other methods. While there are designs available for two systems of continuous processing, so far there is no continuous freeze dryer in operation on food products.

He sees a definite trend toward installation of a number of separate vacuum chambers in a group with ready accessibility to a common loading and unloading facility. These methods bring about economies in labor and utilities.

Operations Are Growing

"Some 60 vacuum chambers in various countries of the world are now in full- or part-time use for the commercial production of freeze-dried foods," he said. In the United States practically all large food processors now have freeze-drying equipment for experimental, pilot plant, or even small commercial runs.

Items now in production here include freeze-dried shrimp, meat products (including beefsteaks and pork chops, cubed and ground beef, and diced chicken), precooked scrambled eggs, vegetable and beef dinners, chicken stew, rice and chicken dinners, and ham patties, as well as dried chicken dices and dried mushroom pieces for soup mixes.

In Canada, commercial production of freeze-dried foods started

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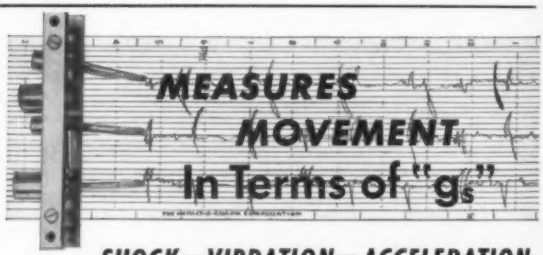

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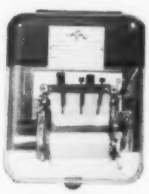
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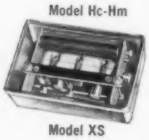
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at Essex Packers Ltd. in May of this year. Mr. Nair rates its production capacity at 25 tons of dried product per year based on an 8- to 10-hr. drying cycle. Initially, it has produced hamburger patties, pork patties, delicated steaks, boneless beefsteaks, boneless pork chops, diced turkey and chicken, and cooked beef stew.

Progress In Europe

"Europe has seen much progress this year in freeze drying," Mr. Nair noted, pointing out that the Irish Sugar Corp. is just getting into commercial production with a variety of meat, fish, and vegetable items. He thinks its potential production based on an 8-hr. drying cycle is 10 to 15 tons of raw material daily—using three 8-hr. shifts.

Brook Bond in England is producing freeze-dried coffee in four Mitchell units. The plant freezes the coffee extract in trays *in situ* and applies the heat of sublimation by heater plates situated above each tray as well as by circulating heated trichlorethylene through the tray. These four cabinets have a capacity of 27,000 lb. per week, Mr. Nair noted.

Unilever Ltd. is about to install two Vickers-Armstrong chambers rated at 1¼ tons raw material capacity. He thinks some of its output will be experimental but most of it for commercial use.

Package For Restaurants

J. Lyons and Co. has produced experimental quantities of potato chips, beans, strawberries, raspberries, tomato and vegetable soups in block form, and chicken pieces. Besides initiating marketing trials of various freeze-dried items, this company plans to use its chain of restaurants as an outlet for these foods.

Indicative of further interest in Europe, A/S Atlas is market testing an instant tea produced by freeze drying—a brew without concentration of extract. Also a subsidiary of Amstel Brewing Co. in Brada, N.V. Preserventbedrijf, has three chambers in operation. These are of conventional design, using steam jets for a vacuum source.

Total installed shelf drying area runs from 800 to 900 sq. ft. This equipment handles vegetable products as well as meat dices, which it freeze dries for sale to processors of other food items such as dry soup mixes.

Still More Production

Royal Hollandia Milk and Food Co. in Vlaardingen has six Atlas chambers of the modified Mark I AFD design running on a range of foods. Each chamber has a loading capacity of 1¼ tons per drying cycle. At Singen, West Germany, there is a single Atlas AFD unit in the plant of Maggi GMBH. It uses its output of freeze-dried meat pieces and vegetables for its dry soup mixes widely distributed in Europe.

Other reports indicate that Knorr has one or more chambers for freeze drying of meats and vegetables at its Swiss plant, and that

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Nestle's plans to have a plant in Cumberland. However, Mr. Nair warns that these are not confirmed. Outside of Europe and the United States and Canada, there has been little attention to freeze-dried foods, according to Mr. Nair. He notes, however, that there is at least one commercial installation in New Zealand.

Expansion Is Cautious

Exploitation of freeze drying for commercial purposes has stepped up efforts to produce dried food products of highly acceptable rehydratability with retention of color and flavor and minimum texture change, he asserted.

More installations and larger production volumes mark the progress of the past year, but customer acceptance here and abroad will decide how rapidly the commercialization of freeze-dried foods can expand, according to Mr. Nair, who sums up the present attitude as "expansion—with caution."

"Aside from logistics, a big reason for the Armed Forces' interest in dehydrated foods is to have rations with long shelf life," Harold Salwin, chemistry and microbiology branch, QMFCI, told the conference. "But if we are to improve upon nature by changing the moisture content of foods, we need the answers to two questions—what do we mean by moisture, and where should we stop in the dehydration process?" Mr. Salwin asserted.

Reminding his audience that quick-serve rations come from combining foods individually cooked, dried, and packaged, in a water-vapor proof lamination within a paperboard carton, Mr. Salwin said that some ingredients exert a high water-vapor pressure while others have a low presure.

Differences in relative humidity are responsible for the migration of water vapor from one ingredient to another. When this transfer is excessive, we may lose the stability benefits of dehydration.

However, Mr. Salwin explained that by finding the moisture sorption isotherms for each component, you can compute the equilibrium moisture distribution in the combination. This approach makes possible finding the packaging compatibility of the dehydrated foods.

How Humidity Guides

To eliminate the costs, weight, bulk and inconvenience of separate packaging of ingredients and to preserve the stability of mixtures of dehydrated foods, he recommended using the best relative humidity of the most sensitive component. This is a guide to the equilibrium relative humidity of the mixture. Relative humidity rather than moisture is the determining factor he explained.

"The exact moisture content of a food is somewhat an enigma since you determine analytical values by various experimental conditions which give a range of data—but which are ineffectual," Mr. Salwin explained. But he added that you either eliminate or minimize these difficulties when you find water

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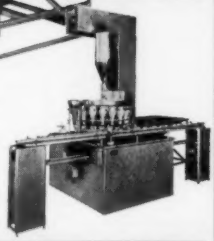

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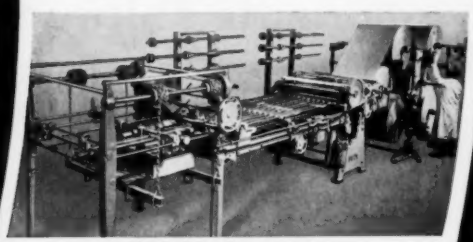

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vapor pressure rather than moisture content.

With large representative samples, it is easy to make the determination quickly with an electric hygrometer. He concluded that broader use of water vapor pressure for definition of food composition deserves attention.

Face Four Key Problems

In spite of current progress in dehydrated foods, there are still at least four problems yet to solve, according to A. S. Henick, chemistry and microbiology branch, QMFCI. He urged attention to:

1. Relation of moisture content to oxidative stability.
2. Oxidation of liquids in dehydrated model systems.
3. Relationship of enzyme action to oxidative deterioration.
4. Interaction between the products of lipid oxidation and other food components such as proteins.

Ways To Test Packages

Many variables govern the choice of ways to find out whether or not a package is tightly sealed, according to S. D. Powell, contractors materials research and process engineering dept., Douglas Aircraft Co., as he reviewed his company's studies of non-destructive leak testing methods. The variables include:

1. Compatibility of the method with the type of packaging operation to which it may apply.
2. The package quality level and resultant frequency or infrequency of inspection to maintain. What degree of package integrity to require? What is the capability of production machines?
3. Types and sizes of packages to be tested.
4. Purpose of the package and allowable leakage if any.
5. Contents of package as affected by test methods.
6. Initial cost of test equipment and costs of its adjustment, maintenance and operation.

How Test Works

He described a method his company developed to determine the

expected leakage of gas through permeable barrier materials and through measured holes and impermeable barriers under conditions about comparable to those of actual packaging and storage.

A test cell with gas line connections uses a barrier under test to divide the cell into two equal compartments. One side contains a contaminent gas and the other side contains air—both at atmospheric pressure. Once the laboratory people seal off the cell, the contents on the 'air' side pass through a Perkin-Elmer vapor fractometer, calibrated for various concentrations of the gas in air. They then interpret the reading on the recorder chart as a given concentration of gas in the air from the test cell.

Mr. Powell said tests with this cell and the fractometer are reproducible within close limits and show that you can use such a method in studies necessary to set up a test procedure with a contaminant gas in a known and specific package.

Citing the reconstitution ration carton of the Army's new quick-serve meal as an example of machinery requirements for packaging dehydrated foods, Harry W. Lee Jr., packaging research division, Reynolds Metals Co., said that after a double package maker forms cartons at about 60/min., they go to the filling unit which folds down each carton top in evacuation position.

Then it rams the carton into the evacuation chamber and opens the top bellows inside the chamber to permit evacuation of air from the food and refilling with nitrogen. After putting in the nitrogen, it heat seals the liners to retain the nitrogen. After this, each carton goes through a closing machine which glues the top flap to the side, thus completing the package.

Discussing vacuum packaging equipment for heat processed foods in flexible packages, John D. Clemens, director of machine service, flexible packaging division, Standard Packaging Corp., enumerated four characteristics common to these items:

1. An initial cook by the food producer with a secondary heating by the consumer before serving.
2. Hermetically sealing the package after drawing a vacuum in the magnitude of 10-25mm, absolute.
3. Polyester-polyethylene packaging material.
4. Freezing or refrigeration necessary during distribution.

Summarizing what it takes to get a good flexible gas package on a high-speed production basis, William Boston, president, Bartelt Engineering Co., Inc., said that various systems such as reverse flow, vacuum breakback, out-and-out vacuum packaging, and an inert atmosphere have proved effective.

Citing a reverse flow system, he said speeds up to 200 units/min. are feasible with it on multiple tube machinery, but noted that the system is open-ended and not adaptable to positive control. Using an inert atmosphere system offers the greatest degree of control in that

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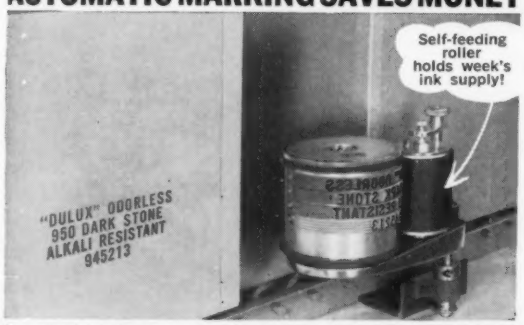

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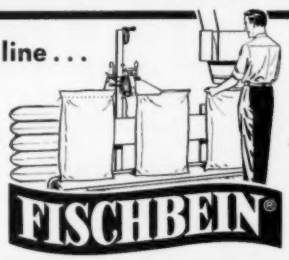

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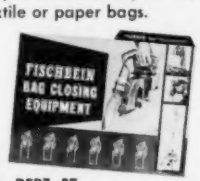

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it is a closed system through the critical opening, filling and final sealing, Mr. Boston noted. This avoids exposing product to ambient air and permits monitoring the atmosphere at any point in the operation.

Flexible Package Sterility

Discussing problems of assuring sterility in thermally processed foods in flexible packages, Dr. Bruce H. Morgan, manager of packaging research, Metal R & D, Continental Can Co., compared a flexible package during thermal-processing to the figureless amoeba. He pointed out that product sterility in a flexible film requires a different frame of reference than that applicable to rigid metal cans or glass bottles.

"You must assume a change in package configuration during processing due to minor changes of external pressure or heat and thermal gradients within the product," Dr. Morgan asserted. He said that the flexible film during processing becomes a flexible or undulating package.

Variables To Watch

In explaining the development of thermal process, for flexible pouches, Dr. Morgan listed five variables to recognize and control, to achieve success:

1. Pre-retorting factors, such as vacuum filling (actually lack of head space gas) location of the seal and the size of the pouch.

2. Physical aspects of the retort, primarily package placement to assure the heating and cooling medium having maximum contact with the package surface.

3. Heating cycle, including the heating medium (water or steam); enclosed gases in the package; package expansion; package cross-section; counter-pressure control.

4. Cooling cycle—from the start of the cooling cycle to the final opening of the retort.

5. Post-retorting problems.

Problems of maintaining the integrity of these films become paramount in thermal processing of flexible packages, Dr. Morgan declared. Treatment in the retort may either produce a physical failure or cause a weakness that later will produce failure, he noted.

He warned his audience to remove packages from the retort and retort area judiciously, noting that the packages are under thermal stress as they leave the retort. He thinks it is equally important to protect these packages in distribution channels.

Like Usual Retorting

Reviewing experience in producing thermally processed foods and flexible containers on a commercial basis, George E. Tripp, developments and standards branch, container division, QMFCI, explained that the Institute designed the process around conventional equipment and methods, basing it on internal pressure developed within the package.

"The system parallels conventional retorting processes for glass containers such as the use of overriding air pressure when temperatures exceed 212° F., and cooling the packages before removing them from the retort," he explained.

Using a glass cook retort, the Institute determined the types of commercial packaging materials for the process and demonstrated the feasibility of flexible containers for thermally processed foods. It used non-acid, ration-type items requiring a full 250° F. process as a criterion.

Mr. Tripp noted that of the 58 packaging materials evaluated, these three proved the best; 0.003-in. vinyl; 0.00035-in. aluminum foil and 0.00005-in. polyester.

What They Learned

Mr. Tripp summarized the Institute's major findings:

1. Thermal processing of fruits in flexible packages is feasible and products produced in this manner maintain satisfactory acceptance during storage.

2. Six oz. packages of fruits, thermally processed in flexible contain-

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ers, give adequate performance, under conditions of military use. However, improvement of rough handling and shipping characteristics is desirable.

3. Laboratory experience indicates thermal processing of non-acid products in flexible containers is feasible.

Demands On Films

"Proper packaging of either freeze-dried or thermally processed food does not impose impossible or even unique property requirements on flexible packaging materials," declared H. C. Horst of The DuPont Co.'s Film Dept. He noted however that resistance to permeation by oxygen and water vapor is of primary importance.

He pointed out that more thermally stable heat sealing materials are necessary and short term prospects look good. However, he doubts that any plastic material providing an order of magnitude improvement in barrier properties will be available in the near future.

Reliability of physical handling, accurate measurement and minimum contamination represents special requirements for the practical measurement and filling of highly concentrated products, according to M. K. Viitanen, branch manager of packaging equipment div., FMC Corp.

He explained that vibratory or auger feeding coupled with proportioning (using either volumetric or gravimetric means) is satisfactory for dehydrated foods. Studies of mixing techniques showed an experimental twin-shell blender adequate for some granular mixes, but indicated that a ribbon-type mixer is most satisfactory for fatty ingredients.

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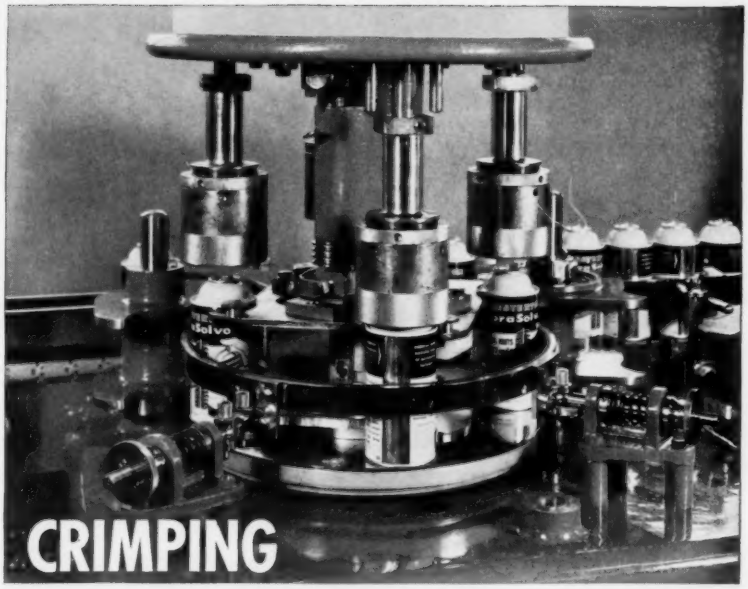

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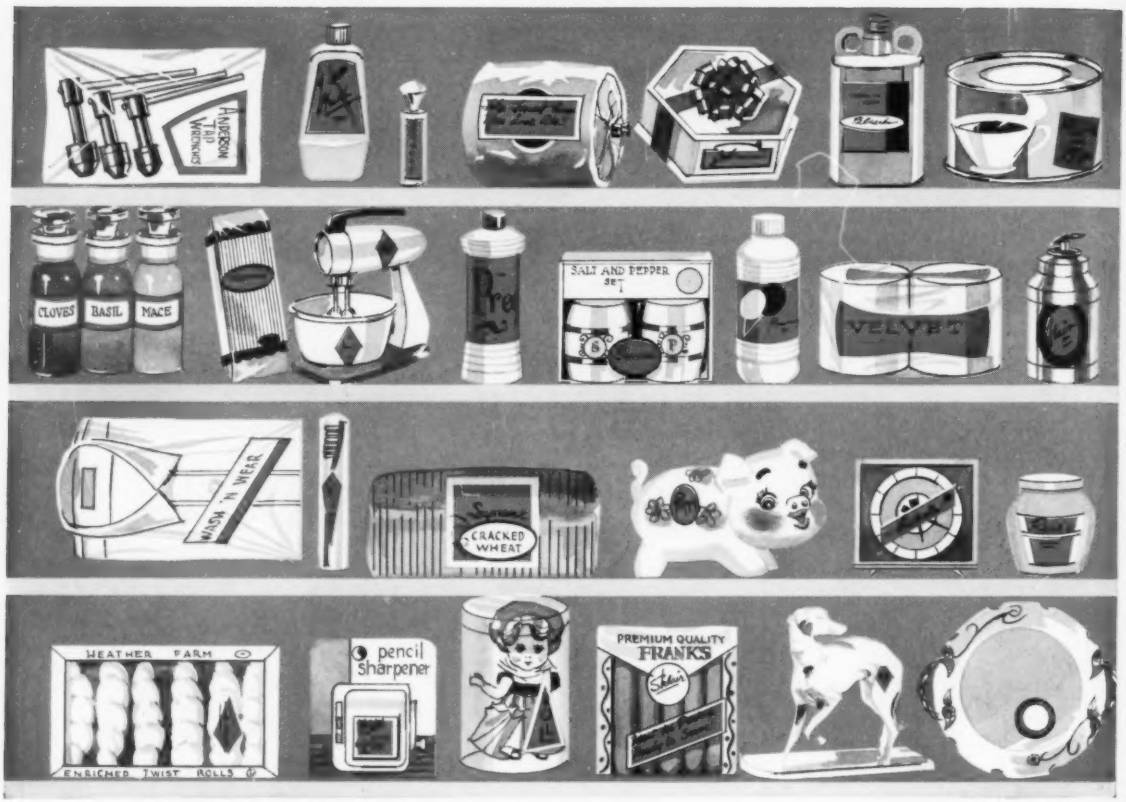

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The *world's simplest* labeling method is also the world's most versatile! New "Label-Aire" handles *any size or shape* of label on *any type* of product or package — even hard-to-label irregular shapes and delicate materials. In Label-Aire's exclusive "Jet Action", incoming air jet picks up single label from roll . . . outgoing jet expels it into exact position desired — all with amazing speed and accuracy. Mounts directly into production line from top, bottom, side, or angle. Give *your* difficult labeling operations *jet-age speed* with the Kleen-Stik "Jet-Action" Label-Aire!

- Eliminates heat, water, glue, hand labeling!
- Feeders, stackers, conveyors and other special engineering accessories available
- Manufactured and guaranteed by Kleen-Stik —pioneer and leader in pressure-sensitives
- Available on Lease — no heavy investment

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KLEEN-STIK PRODUCTS, INC.

7300 West Wilson Avenue • Chicago 31, Illinois

PLANTS IN CHICAGO, NEW YORK, LOS ANGELES, AND TORONTO, CANADA

C. Baker, deputy quartermaster, USCONARC, pointed out.

He added that scientific advancements dictate a military activity characterized by mobility, speed, and dispersion for military strategy. To meet these requirements, rations must also maintain stability, provide adequate nutrition, and have good acceptability.

Three Main Meals

"We have attained this in part," Col. Baker said. If progress on further developments accelerates, by 1965 the Army will have available for use the family of combat rations just now under development; (1) quick-serve meal, (2) meal, ready to eat, and (3) meal, uncooked. Col. Baker told his audience they consider these three types of rations the most important.

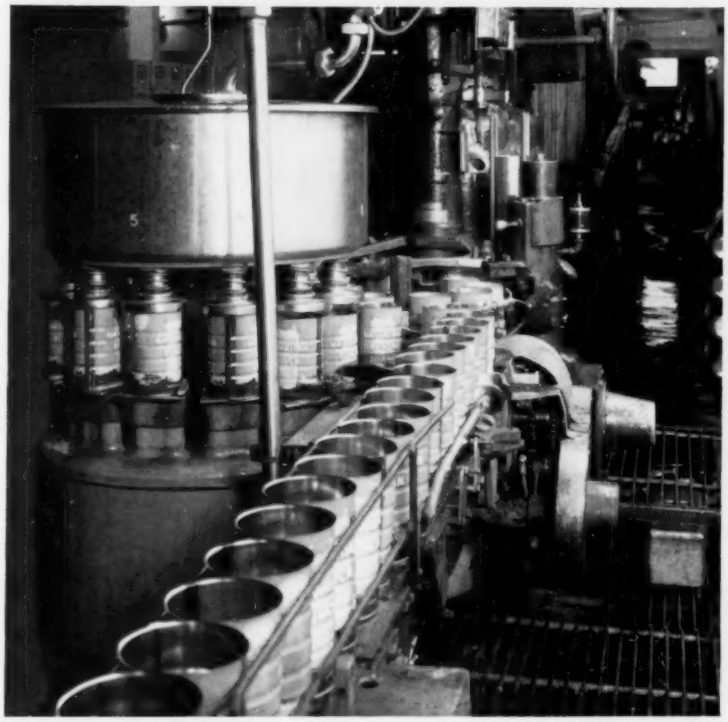
Noting the challenge of keeping the supply operations as mobile as the fighting units that will use the supplies, A. V. Grundy, director, container division, QMFCI, said: "Flexible packaging is one answer to this challenge. Unit loads furnish another answer."

He pointed out that package weight is extremely important. For example, reducing a single meal four oz. would cut the delivery load of subsistance for one infantry division nearly one-half million lb. /month—exceeding the rated capacity of 17 C-123 transport aircraft.

Although acknowledging the importance of first rate meals for combat troops, some of those present thought the military people have been working with somewhat exotic and fancy fruits and vegetables.

Military representatives hastened to point out that combat troops are not going to get "gourmet" meals. It is simply that the fruits and vegetables they chose for these tests have properties posing the kind of problems whose solutions set the standards for widespread use of these foods in military meals. *(End)*

FLUIDICS* AT WORK



Four years of accurate filling at 110 CPM, and *only* the seal rubbers had to be replaced

A contract packer has to have equipment he can rely on.

Like this Pfaudler® C-12 Gravity Filler. At S. C. Clayton Co., Boston, Mass., it handles 46-oz. containers at 110 CPM with accuracy of ± ⅛ oz., using open air tubes. In service since 1957, it has required only routine maintenance. And *just* the seal rubbers needed replacing.

For you? Pfaudler Gravity Fillers offer you clean, fast fill for any free-flowing liquids . . . hot or cold.

Sanitation is assured since working parts are enclosed and your product contacts only stainless steel. Thus, no worry about contamination since you have lifetime resistance to corrosion from foods or normally used cleaning agents.

Simple design. Like all Pfaudler fillers, the gravity fill models are designed to provide quick adjustment, ease of cleaning (entire valve system can be dismantled in just 30 minutes), and minimum maintenance.

More facts? Specifications for the 9-, 12-, 14-, 18- and 24-station Gravity Fillers are detailed in Bulletin 986. Write for a copy. Address inquiries to: Pfaudler Division, Dept. **PE-111**, Rochester 3, N. Y. In Canada, contact Pfaudler Permutit Canada Ltd., Toronto.

*FLUIDICS is the Pfaudler Permutit program that integrates knowledge, equipment and experience in solving problems involving fluids.

PFAUDLER PERMUTIT INC.
Specialists in FLUIDICS . . . the science of fluid processes

For more information circle No. 272 on Reader Service Card

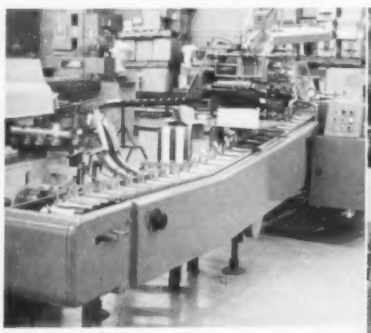
ANNOUNCEMENTS

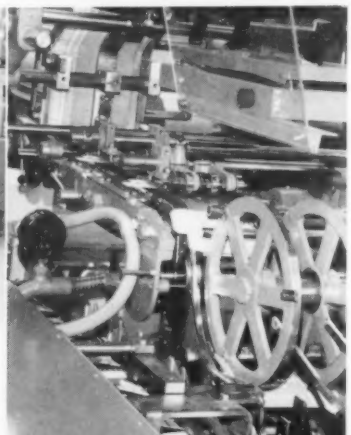
OF MACHINERY AND PRODUCTS

A SERVICE TO READERS: To get more information follow directions on Reader Service Cards inside front cover or write direct to manufacturer.

1—Modular units give flexibility to fast cartoner

"Building block" construction permits the combining of selected units (e.g., article buckets, tectors, droppers, platforms, and booklets; feeding and folding of leaflets and circulars; or code



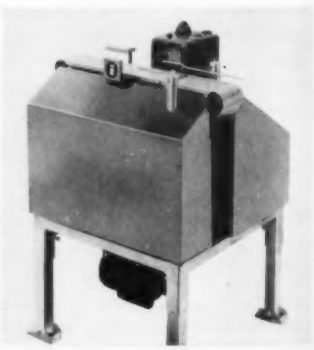


carton tuckers) with the base unit of the new Redington Carton King. This unit is a high-speed, fully automatic, continuous-motion horizontal cartoner that operates at speeds to 600/-min. It puts bottles, jars, tubes, and other items in cartons on a sustained production basis. Carton sizes range from 1x⅞x2 in. to 3x3x8 in., with minimum use of change parts. Cartons can be reverse tuck, straight tuck, or glued end. Using building block construction, the maker can furnish units for the automatic feeding of corrugated pro- printing and impressing on side or end panel, among others. The machine's principal motions are rotary, its main drive gears operate in oil, and it has ball and roller bearings on all main drives.

Circle code number on card or write: Redington Div., Crompton and Knowles Packaging Corp., Dept. PE, Holyoke, Mass.

2—Detects low weights

A compact automatic underweight rejector for detecting missing components within package units, the Model UWR-1, handles closed packages in a weight range to 7 lb. The maker says this equipment accomplishes 100 per cent rejection of all units under a predetermined weight, within an accuracy tolerance established by line speeds and product characteristics. As the package flow moves across the machine, a flipper reject mechanism discharges underweight units off



the polyester carrier belt. The unit runs at speeds up to 300 packages/min. Height is adjust-

able. All electronics are solid state, in a plug-in unit located in the weigh cell.
Circle code number on card or write: Illumitronic Systems Corp., Dept. PE, Sunnyvale, Calif.

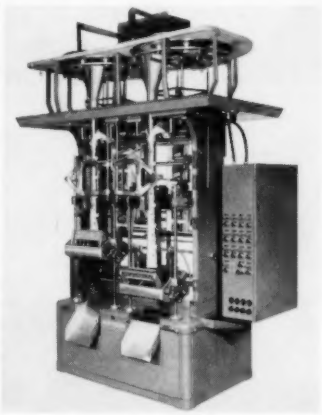
3—Dome comes off pail

After removing the contents from the new KonverTaCan, a 5-gal. dome-top steel pail (for

oil, grease, and other petroleum and chemical products), a user may convert it to an open-head pail. As a dome-top pail, its cover is fastened to the pail with a tightly crimped steel band seal. To convert the container, the user breaks the band seal with a screwdriver and removes the cover. Now the can becomes an open-head pail with full bail handle and contoured plastic grip. It is available in 24-, 26-, and 28-gauge steel.
Circle code number on card or write: Inland Steel Container Co., Dept. PE, 6532 S. Menard Ave., Chicago, Ill.

4—Seals foil packages

Filling and hermetically sealing pre-formed one-portion aluminum foil containers, the new UCS-30 machine runs at speeds to 240/min. It packages homogeneous products (jelly, syrup, etc.) in pre-formed containers sized from ½ to 2 oz. in increments of ¼ oz. The machine uses plain or laminated aluminum foil (coated with heat sealants) as a sealing material. Five feed magazines feed the containers on a continuous conveyor, passing under the filling unit. The filler dispenses measured portions of product into five containers simultaneously. Filled containers pass through the hermetic sealing unit, which covers and seals the containers with a sheet of foil. Before discharging them from the conveyor, the machine separates containers into groups of 20, each 20 under



a single cover. Then at a separate station, it die casts each group into individual containers and deposits them in a pulp board tray.
Circle code number on card or write: Ekco-Alcoa Containers, Inc., Dept. PE, Wheeling and Hintz Rds., Wheeling, Ill.

5—Film holds shrink

Non-fogging, gloss, strength, and heat sealability are features of Vitafilm ST, a new shrink-tight film for packaging frankfurters. It has a yield of 21, 500 sq. in./lb. Passing through the shrink tunnel, the film does not "relax" or loosen but remains tight even after display in refrigerator cases, according to its developers.
Circle code number on card or write: The Goodyear Tire and Rubber Co., Dept. PE, Akron 16, Ohio.

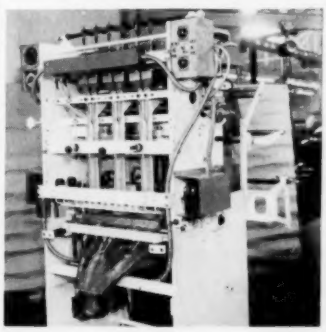
6—Gluer easy to move

This new portable adhesive applicator operates either by itself as a self-contained unit or

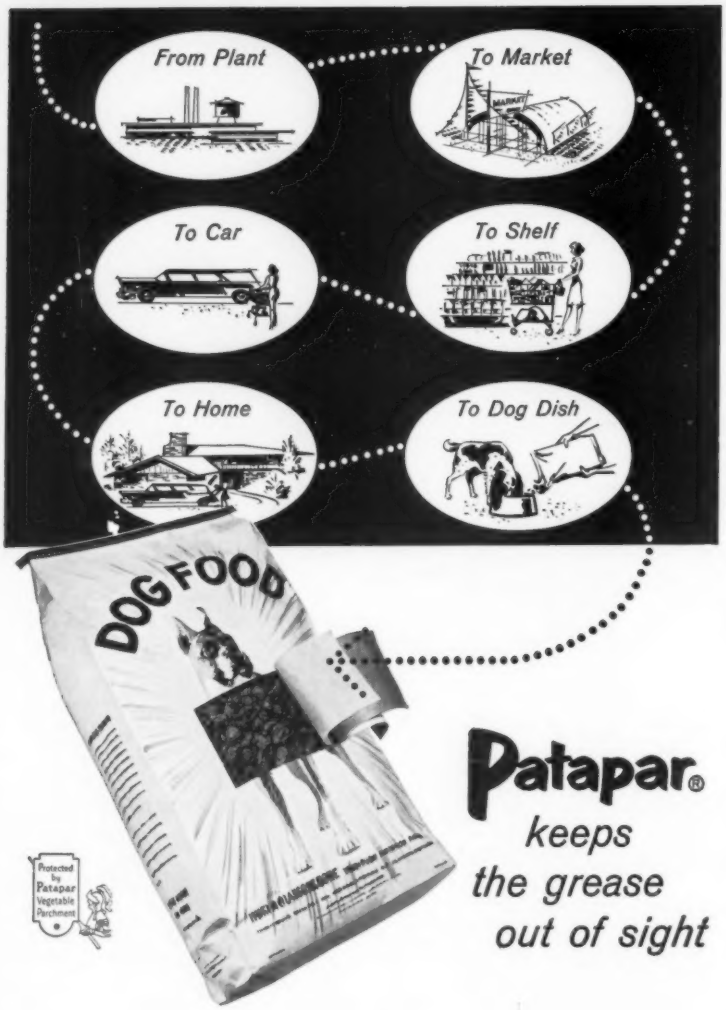
on machines now using glue pots or wheels. It weighs 10 lb. when filled with a gallon of adhesive and operates by contained compressed air. The unit withstands air pressures exceeding 250 lb./sq. in. It gets its air charge through an automobile tire type valve. This applicator has adjustments for high- or low-viscosity adhesives, as well as for the glue or bead pattern.
Circle code number on card or write: The Systemation Corp., Dept. PE, 60 Freemont Ave., Worcester 3, Mass.

7—Fill dry, liquid items

Readily convertible from filling dry to liquid products (and vice versa) the new Converti-



pak, a machine that makes and fills pouch packages with liquids or free flowing granular products, uses a single roll of heat sealable film or coated paper. It slits this into three webs and forms each web around a pair



Patapar®
keeps the grease out of sight

• During *l-o-n-g* storage, during *l-o-n-g* shipments, throughout *l-o-n-g* periods on a shelf—a dog food bag lined with Patapar keeps its fresh, clean appearance. This rugged Vegetable Parchment is grease- and abrasion-resistant, preventing staining and bursting. It's strong and absolutely pure. Patapar is usually used right next to the product so that the outer bag is fully protected from discoloration or staining from grease.

Send for free samples of Patapar Vegetable Parchment today.

PATERSON PARCHMENT PAPER COMPANY
Bristol, Pennsylvania

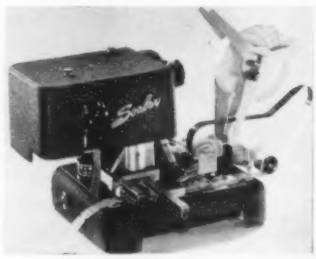
NEW YORK, N.Y. CHICAGO, ILL. SUNNYVALE, CALIF.

of feed tubes. It then heat seals the film or paper down the center (between each pair of feed tubes) and then slits it down the center of this seal. After filling the packages, the machine cross seals and cross cuts them to make flat packages heat sealed on three sides. Lengths run up to 5 in. Making six packages per cycle, the unit produces up to 480/min. with dry products, less with liquids.

Circle code number on card or write: Converters Service Co., Dept. PE, 2344 E. 38th St., Los Angeles 58, Calif.

8—Label Marker

Automatically marking and counting labels up to 170/min. from rolls, the Model 21 label marker has an automatic rewind. A label knife and stacker



also is available. The automatic self-stop counter may be set to stop the machine at any number of labels from 1 to 1000. A run-out switch stops the machine and counter when the label roll comes to an end and the count continues with a new roll. This unit marks sew-in, pressure-sensitive, gummed paper and button types of labels from ¾ x⅜ in. to 1x1-⅜in.

Circle code number on card or write: Soabar Co., Dept. PE, 7722 Dungan Rd., Philadelphia 11, Pa.

9—Sticky Surface Panels

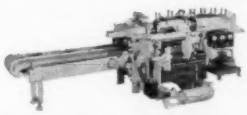
Pressure-sensitive adhesive coating on their surfaces lets the Pres-Pak panels hold in place the parts deposited on them. These panels are available in single- or double-face corru-

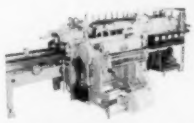
9 WRAPPING MACHINES

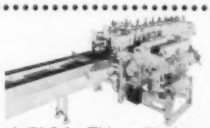
ONE OF THESE

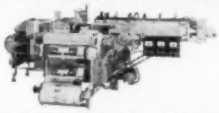
Battle Creek model 475's will soft film overwrap your thin, rectangular or irregularly shaped products at high speed

Model for 475 General Rectangular Applications


Model 475-H for Soft Irregular Products


Model 475-SN for Square Soft Items

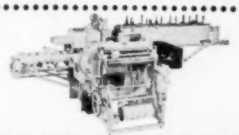

Model 475-S for Thin or Thick Items


Model 475-TS for Soft Rounded Shapes

Model 475-TT for Irregular Products

Model 475-N for Paper Napkin Overwrapping

Model 475-T for Textile Products

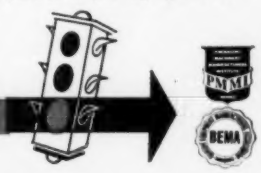

Model 475 for Rectangular Trays or Cartons

products like these can be beautifully packaged at speeds up to 75 per minute

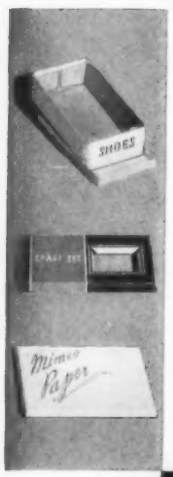
These newly developed machines have been thoroughly field tested in more than 100 installations. All machines create attractive, weld-sealed packages in polyethylene and most of the currently available plastic films besides being adaptable to films of the future. Our engineering service will help you choose from nine different Model 475's the machine best suited to your particular packaging needs. Send your inquiry in today.

Continuous Flow PACKAGING

BATTLE CREEK *packaging machines, inc.*, BATTLE CREEK, MICH.



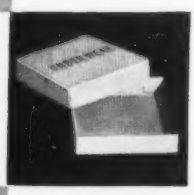
UNIVERSAL
BRIGHTWOOD
BOX MACHINE



QUALITY boxes at lowest cost

In one automatic operation flat printed blanks become perfectly squared, solidly glued boxes for shoes, underwear, corsets, games, candy, etc. — boxes with turned-over ends and finished edges all around, made from double-walled or laminated blanks. Regular glued-end single wall boxes may also be made. A very wide size range can be produced on the one machine.

Write **US** for complete information.



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PACKAGING MACHINERY MANUFACTURERS INSTITUTE PMMI MEMBER

U. S. AUTOMATIC BOX MACHINERY CO., INC.

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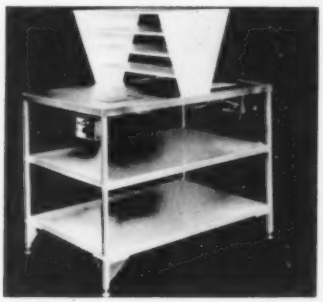
Branch Offices: New York • Chicago
James C. Hale Co., Los Angeles, San Francisco • R. S. Gold, Toronto

gated or chipboard in various thicknesses. Panels are round, square, rectangular, or die-cut, with light, medium or heavy adhesive coatings. The maker points out that a user may, for example, put all component parts for a single assembly in place on a single Pres-Pak panel. One panel may rest on top of another in a shipping case or in storage shelves. The adhesive leaves no transfer marks on parts.

Circle code number on card or write: Pres-On Products, Inc., Dept. PE, Factory Rd., Addison, Ill.

10—Packaging Table

A compact packaging table, the Model PT-32, for use by two operators, provides two complete packaging stations and



fits into a floor space of 32x48 in. With a common film storage shelf system, the standard design includes two Dove model 5F-10R Electro-Sealer hot plates, located at the same end of the table for right- and left-hand operations. The PT-32 is available in variations including additional lower shelves, handirons, and elimination of hot plates. It has a stainless steel top, hammertone gray finished steel lower shelves, and white enameled top storage shelves. Working height is 36 in.

Circle code number on card or write: J.B. Dove, and Sons, Inc., Dept. PE, Box 5, Bristol, Pa.

11—Form-Fill-Seal Unit

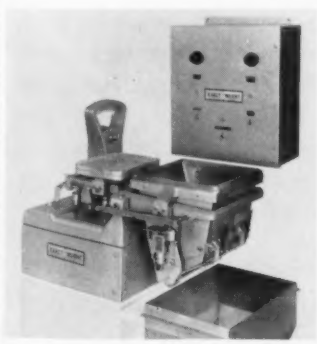
A rocker-arm drive mechanism that utilizes the weight of one

draw bar to counter balance the other draw bar contributes to the speed of the new Expand-O-Matic packaging machine, which operates up to 200 bags /min. The maker points out that the new "self-counter balancing" construction reduces friction, over-all weight, and machine wear and eliminates the need for special balancing weights. The drive mechanism uses no cams or springs, and all shafts are ball-bearing mounted. For single-tube operation of 100 bags/min. the Expand-O-Matic has only one draw bar and tube forming mechanism. Its basic main frame and drive mechanism, however, remain the same as for double-tube operation. The machine also has a new air-operated jaw assembly and new continuous pull-off mechanism to reduce web breakage. This machine, when fully equipped, can simultaneously package two different products in two dissimilar packaging materials.

Circle code number on card or write: Hayssen Manufacturing Company, Dept. PE, Sheboygan, Wis.

12—Net Weighing Unit

An automatic net weighing machine with a 75-lb. capacity, the 630 net weigher is a heavy-



duty even-balance lever scale. It has an air-operated dump mechanism on the weigh hopper. The hoppers are available with capacities from ¾ to 2 cu. ft. The scale has a control sen-

VITAL COST REDUCTION IN...

HIGH SPEED SMALL ELECTRONIC PARTS PACKAGING

Package small, fragile electronic parts and components with Wrap-Ade's NEW small parts packaging machine.

Ideal for Packaging

DIODES
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RESISTORS
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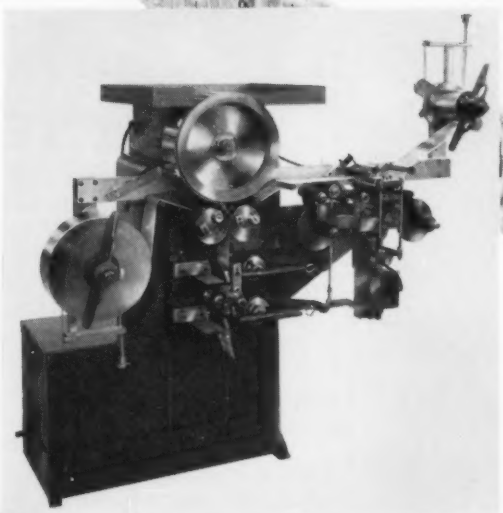

For complete information and quotation; send samples of product today . . .

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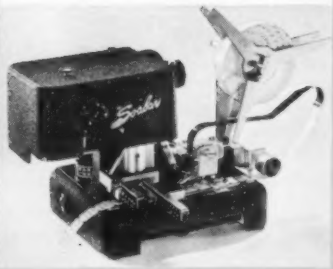
SINCE 1932
MACHINE CO., INC.
188 SARGEANT AVENUE
CLIFTON, NEW JERSEY

Your **SOABAR MAN*** recommends... Soabar's NEW Model 21 Label Marker



COMPACT DESIGN allows more marking area for pricing, product identification, stock control . . .

HIGH SPEED OPERATION automatically marks and counts at a rate of 170 labels per minute from money-saving label rolls. Automatic rewind, or label knife and stacker, also available.

AUTOMATIC SELF-STOP COUNTER may be set to stop machine at any number of labels from 1 to 1000; maintains accurate count.

RUN-OUT SWITCH stops machine and counter when label roll comes to an end. Count continues with new roll.

NEW LABEL REELS simplify loading . . . provide smooth, trouble-free operation.

VERSATILE—Model 21 marks a variety of labels—sew-in, pressure sensitive (Quick-Stick), gummed paper and button . . . from ¾" x ⅜" to 1" x 1⅞". Flexible Marking Methods provide split-second copy changes . . . choice of type, slugs, vinyl plates, addressograph plates, line cuts, and "dial" registers. Ask for a no-obligation demonstration next time your Soabar representative calls!

*Gordon Nixon, District Manager, Baltimore, Md. . . . one of 36 SOABAR marking specialists conveniently located throughout the U.S.

Soabar COMPANY

Specialists in Marking Equipment and Roll Tickets and Labels Since 1912

7722 Dungan Rd. • Phila. 11, Pa.

sitivity to ½ oz. accuracy and a dial that can be read to 1 oz. Simplified automatic adjustable controls are mounted on the scale for operating feeding equipment such as automatic valves, vibratory feeders, auger feeders, or conveyor belts. The 630 can be operated singly or in multiples of two or more machines.

Circle code number on card or write: The Exact Weight Scale Co., Dept. PE, 541 E. Town St., Columbus 15, Ohio.

13—Can Crusher

A fast-acting, splash-free can crusher performs three operations automatically when a filled can is dropped into its chute. In one process, it punctures the

can, drains the contents off through a valve, crushes the can and discharges it through an outlet in the bottom. The crusher takes virtually any type of liquid-sealed can up to 16-oz. size—filled, shorts, and rejects. Its area is 18x36 in., and it mounts on a drum or waste container. It runs on a 220 or 440 line, with ¾-h.p. motor. It has a reversing switch and a five digit reset register. It adjusts to any desired height, admits one can at a time, and accepts up to 1500/hr.

Circle code number on card or write: Vis-O-Lite Co., Dept. PE, East St. Louis, Ill.

14—Carton For Liquids

Designed to hold liquid and semi-liquid products, the Liquitainer is a folding carton with a polyethylene liner. This liner is from a blend of resins and

Another application for

PROXMELT®

We are proud of our part in designing this decorative seal with its old style charm for Star Hill Distilling Company. The tamper-proof, protective thermoplastic wax is made of PROXMELT, forming a perfect closure seal. A filament tear tape was placed under the wax just overlapping the cork, for easy opening and to provide a clean pouring surface.

We welcome all inquiries on special problems involving thermoplastic wax or adhesives. Write or phone . . .

Chicago 32 • VIrginia 7-4800

KIMBERTON, PA. WE 3-8857

Mexico, D.F.

Pyroxylin PRODUCTS, INC.

its minimum thickness is 0.002 in. This fits into a bleached food board carton of 26 pt. caliper for a half-gallon. The pour spout, an integral part of the package, can be reclosed. Contents can be frozen without damaging the package. The producer's department of physical research has developed a filling and closing machine to handle this package at 10 cartons/min. It handles gal. and half gal. containers.

Circle code number on card or write: Bemis Bro. Bag Co., Dept. PE, 325 27th Ave. N.E., Minneapolis 18, Minn.

15—Crimping Gauge

For laboratory or production use, the new Quik Check crimping gauge for aerosol containers determines the internal diameter of valves having a 1-in.

cup. The gauge is set to give an instant reading from 1.060 to 1.075 in. The unit is 4 in. long and 1¼ in. wide. There is a standardizing adjustment on one leg of the unit. The gauge eliminates the use of calipers and has a standard checking tool set at 1.065 for calibrating the gauge. Each gauge has a vest pocket holder.

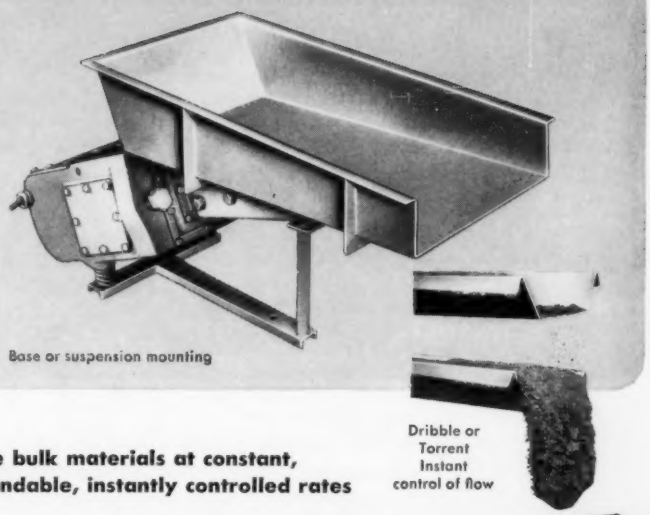
Circle code number on card or write: Pressure Pak, Inc., Dept. PE, West Palm Beach, Fla.

16—Labels Stand Cold

Functioning at temperatures below 30°F., the new P-6 Perma-Grip pressure-sensitive labels adhere to warm surfaces and can go on before or after freezing. The developers say

HANDLE BULK MATERIALS AT LOWER COSTS

SYNTRON VIBRATORY FEEDERS



Move bulk materials at constant, dependable, instantly controlled rates

Syntron Vibratory Feeders provide the most efficient and economical method of conveying bulk materials. They have proven for more than 30 years their ability to handle most types of bulk materials—fine powder to large lumps—hot or cold—dry or damp—in densities from 400 pounds to 6 pounds per cubic foot.

The simple electromagnetic drive unit produces 3600 vibrations per minute, assures continuous, dependable operation with a minimum of maintenance. The finger-tip control of material flow enables Syntron Vibratory Feeders to effectively fill the production gap between storage and process operation.

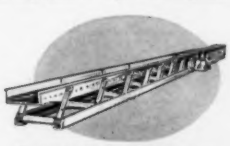
Syntron Vibratory Feeders are available in wide range of feed capacities, with above or below deck magnets, flat pan or tubular troughs, base or suspension mounting. Syntron Vibratory Feeders are the answer to lower bulk materials handling costs.

Write for detailed literature today.

SYNTRON COMPANY
269 Lexington Ave. • Homer City, Pa.

Other Syntron equipment of proven dependable quality

Flow Control Valves


Mechanical Vibrating Conveyors

Hopper Level Switches

WEIGHTLESSNESS MAY BE A FACTOR IN OUTER SPACE...

but on Earth

TOLEDO SCALES

FILL AN EXPANDING NEED FOR BETTER WAYS TO CONTROL COSTS, INCREASE PROFITS

Materials become money, on your scales. And with materials up in cost, and profits under pressure, you need complete, accurate weight records now more than ever before. Without them, a vital ingredient for effective control of costs, inventories and quality is missing . . . and the door is open to serious losses. This is why so many management men are taking a fresh look at weighing.

It is especially important to re-evaluate weighing operations if you've made changes in plant layout, materials handling methods or inventory controls. In *any* of these areas, scales that don't fit the job may throttle production and infect weight records with costly errors.

Let us help you check weighing efficiency in your operations. A few minutes at each weighing station will give you valuable information on scale capacity and location, dial visibility, platform size and height, weight records and other key factors. Write TOLEDO SCALE, Division of Toledo Scale Corporation, Toledo 12, Ohio.
(*Toledo Scale Company of Canada, Ltd., Windsor, Ontario*)

Complete, Full-figure Printed Records with Toledo Printweigh® "400". Takes the "human element" out of weighing, and so eliminates errors in reading, remembering and recording weight data. Prints weights in full figures on tickets, sheets or strips. Will transmit weight data electrically for recording at remote locations. Ask for Bulletin 2017.

SERVICE
Factory-Trained
240 Cities

TOLEDO® *Headquarters for Weighing Systems*

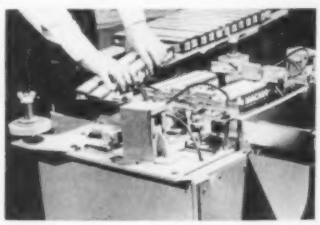
these labels adhere more firmly as temperatures go down.
Circle code number on card or write: Avery Label Co., Dept. PE, 1616 S. California Ave., Monrovia, Calif.

17—Conveyor Systems

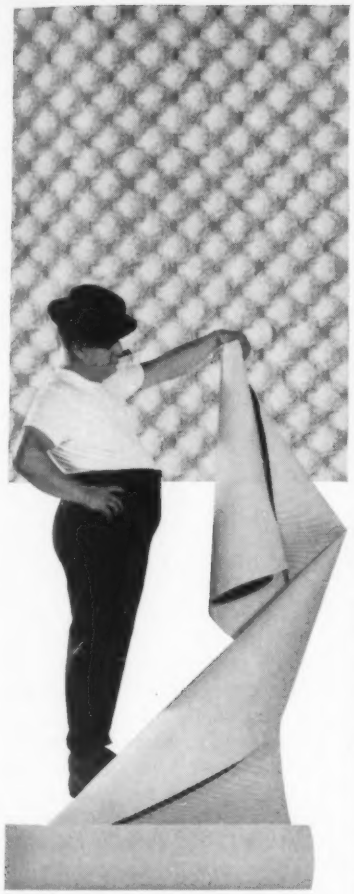
Available as entire systems of standard or custom units, the Model LCC conveyors feature link chain type conveyors with all drive units and other components for both right- and left-hand operation. Standardized sections and connections permit future rearrangment of container travel to meet changing production demands. All drive units are equipped with a 2-1 variable speed drive for synchronizing conveyor speed to machine requirements and type of container handled. Simple turning of a crank regulates conveyor speed.
Circle code number on card or write: U.S. Bottlers Machinery Co., Dept. PE, 4007 N. Rockwell St., Chicago 18, Ill.

18—Taping Machine

Taping together ends of boxes two at a time, the automatic taping conveyor machine applies



pressure-sensitive tape around the ends of the boxes during box conveying to hold the boxes together in pairs. The taping heads are designed and supplied by Minnesota Mining and Manufacturing Co. These heads are adjusted to apply tape around the ends of the boxes at rates to 50 to 60 boxes/min. intermittently, and at conveying speeds up to 200 ft./min. The two boxes are conveyed automatically from the loading sta-



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Shoksorb

Shoksorb permanent-cushion paper means *easy going* for your products. It's softer, yet tougher—made better, to protect every surface, edge and corner, all the way to destination. Features 24 deep cushion molds per square inch each side, formed to stay—the *original* shape of the springy, even-fibered paper. Exclusive diagonal pattern adds strength . . . permits maximum flexibility. Costs no more than ordinary packing papers . . . in lined and unlined sheets and rolls; kraft and crepe-wrapped pads. For wrapping, interleaving, carton lining, carlining, dunnage. Send for Shoksorb samples and illustrated catalog.

KIEFFER PAPER MILLS
BROWNSTOWN, INDIANA

Circle No. 281 on Card

tion to the taping station. Here the machine automatically applies the desired amount of tape to both ends of the two boxes. The taping mechanism automatically cuts the tape according to lengths desired as the two taped boxes are conveyed automatically to the unloading station. Flight-to-flight space on the machine's conveyor belt is 8 in.

Circle code number on card or write: Acme Model Works, Inc., Dept. PE, 200 N. Jefferson St., Chicago 6, Ill.

19—Aluminum Trays

A serpentine divider and an increase in vertical depth are two major improvements in Anaconda's frozen dinner trays. The

serpentine design of the No. 493 tray adds extra strength and rigidity and permits greater variety in food arrangements. The depth of the No. 495 conventional design dinner tray has increased to 29/32 in. from the standard ¾ in. The added depth strengthens the container and provides more compartment volume for "runover" foods (gravies and semi-liquids) which may not entirely freeze.

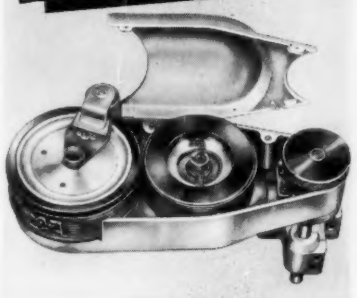
Circle code number on card or write: Anaconda Aluminum Co., Dept. PE, P.O. Box 1654, Louisville 1, Ky.

20—Filler/Applicator

Designed to be part of a package assembly, the new Transorb, a pressure-sensitive filler or applicator for liquids and emulsions, uses capillary action to absorb from five to six times its own weight. The person using the package containing the transorb controls its use. It is inert and takes sterilization temperatures. Used as a filter,

MOST EFFICIENT CODING ACTION

with virtually NO maintenance



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IN THOUSANDS OF INSTALLATIONS

Within less than a year after introduction, Teko Coders and Printers have been selected by leading packagers in many fields for their superior operation, reliability, convenience and savings on maintenance.

A high volume of repeat orders confirm the users' complete satisfaction with the performance of Teko Coders and Printers.

Fully automatic, friction operated, the Model 601 shown is designed for heavy duty continuous, registered or random marking. Its Porelon solid ink eliminates the need for ink fountains, transfer rollers, fluid inks, solvents; Porelon cannot drip or gum up, thus maintenance is virtually eliminated. The Teko Coders are quality engineered and constructed with anti-friction bearings used throughout.

Write for detailed catalogs on any or all of these.

TEKO CODERS AND PRINTERS:

MODEL 100 — High Speed Carton Coder
MODEL 200 — Compact, Continuous Print Top Coder
MODEL 300 — Top Coder with Reset Action
MODEL 500 — Front End Case Coder
MODEL 600 — All-Purpose Coder and Printer

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Represented throughout the United States, Canada and Europe.

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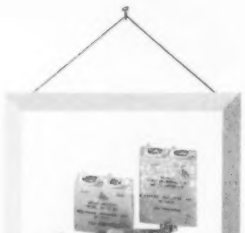
To Fit Your Multi-Point Temperature Control Picture

FEATURING • NEW EP REMOTE CONTROL APPLICATIONS • *readout of from 2-11 remote controllers from 1 ChannelMaster Indicator • shown with precision 7000 Series controllers available individually up to 11 units or in single, multi-channel unit • standard range 0°-800°F.*

FEATURING • NEW EP INDICATING CONTROLLERS • *the 6000-A Series • servo operated • On-Off, Proportio-Null, Cycolmaster and Trimode control circuitry • portable or panel mount • temperature ranges from −300° to 2000°F.*



FEATURING • EXCLUSIVE EP ENCAPSULATED CIRCUITRY • *plug-in circuits and complete units • unaffected by normal shock, moisture and dust for longer life and economical installation and service.*

EVERY SHOWING OF THE EP 6000-A SERIES indicating temperature controllers has drawn "rave notices" from everyone looking for a low-cost, accurate controller. Precise control circuitry, wide choice of temperature ranges and application flexibility make EP indicating and non-indicating controls fit your multi-point control picture . . . and budget! The *next showing* is at the PMMI show . . . or from your local EP representative.

EP CONTROLS

Write now for complete information. Dept. E.

ELECTRONIC PROCESSES CORPORATION

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spacer, or cushioning material, it is available in ⅜ to 1 in. diameters, round or square, and ½ to 5 in. lengths.

Circle code number on card or write: U.S. Filter Corp., Dept. PE, Box 4017, Richmond, Va.

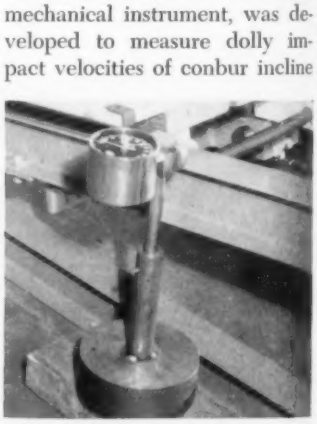
21—Bag With Handle

A polyethylene bag with a built-in carrying handle packages any item which might be carried about after the bag is opened. The bag is of a bottom-gusset construction with design inverted so that the bottom of the bag becomes the top after it is loaded. The gusset is serrated at a given point, and a handle is formed by the gusset when the bag is zipped open along the serration. Thus the handle is protected until the bag is opened and will not snag on edges or protrusions with which the bag might come in contact during shelf life.

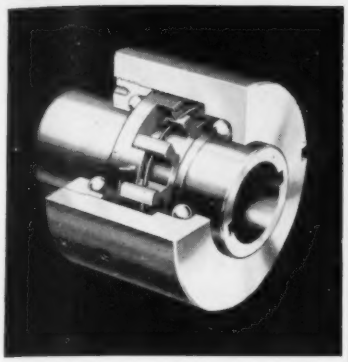
Circle code number on card or write: Dobeckmun Div. of The Dow Chemical Co., Cleveland 1, Ohio.

22—Impact Checker

The Velometer, a self-contained mechanical instrument, was developed to measure dolly impact velocities of conbur incline



impact testing machines in the testing laboratory. It has a calibrated drive unit on the input shaft. Its weighted pedestal near the bottom of the incline track structure supports the unit's meters. It actuates as the dolly passes by. As the dolly contacts the drive unit, the meter regis-



Positive Positioning R L reverse lock clutches

With the R-L reverse lock clutch you can position a load precisely and be sure it will not move. The reason lies in the design that permits torque to be transmitted from the power source to the load in either a clockwise or counterclockwise direction but not from the load back to the power source.

Wide Choice of Capacities—Standard models currently available provide torque capacities from 40 lbs. in. to 30,000 lbs. in. Bores and shaft sizes range from ¼" to 2½".

Typical Applications—Examples of drives benefiting from the positive positioning feature include: radar antenna drives, timing drives, machine tool applications in which cutter bar must be accurately positioned along lead screw, etc.

Get more data by writing for Catalog RL-101.

FORMSPRAG COMPANY
23585 HOOVER ROAD, DEPT. 118
WARREN (DETROIT), MICHIGAN
Precision Power Transmission Products

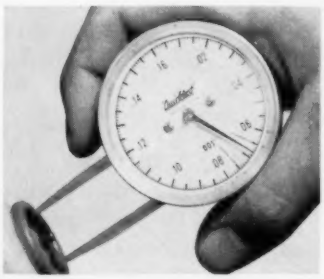
Circle No. 284 on Card

ters velocity in feet per second on its dial which has a resettable maximum speed pointer. This unit permits calibrations, a conbur's operating characteristics in terms of dolly impact velocities for different load and run conditions. Over-all accuracy and repeatability of the Velometer system are within ±5 per cent, according to the maker.

Circle code number on card or write: The L.A.B. Corp., Dept. PE, 500 Onondaga St., Skaneateles, N.Y.

23—Aerosol Cap Tester

This new gauge permits measuring of the brim (bead) on the upper locking cap of aerosol spray bottles. It has a range of 1 to 1.16 in. with readings of 0.001 in. The dial has a low



reading of 1.065 in. and a high reading of 1.075. If the reading of a cap being checked is between these two points (indicated in red), the diameter of the cap is satisfactory. The graduated scale and dial are manufactured of compressed PVC and are crush-proof and inert to influences of oil and gasoline.

Circle code number on card or write: Testing Machines, Inc., Dept. PE, 72 Jericho Turnpike, Mineola, N.Y.

24—Bin, Chute Vibrator

The MC-2 is a new electric vibrator for small bins, chutes, and hoppers and is designed for continuous or intermittent light duty applications. An external mechanical air gap adjustment changes vibration intensity by

FAST PACKAGE SIZE CHANGEOVER FOR FROZEN FOODS

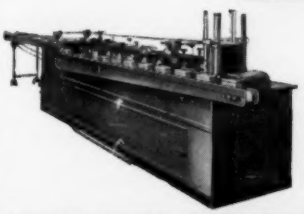
WITH CECO MODEL 40LL

AUTOMATIC CARTONER

- *Changeover from one size to another takes less than ten minutes.*
- *Handles any size frozen food package at speeds up to 90 per minute.*

Here at relatively low cost is the perfect combination of speed and flexibility. With the product inserted manually, the Ceco Model 40LL handles edge lock or center lock cartons fully automatically from hoppering through closing. For full details write for Model 40LL Brochure.

CECO



CONTAINER EQUIPMENT CORPORATION
78-88 LOCUST AVENUE, BLOOMFIELD 3, N. J.

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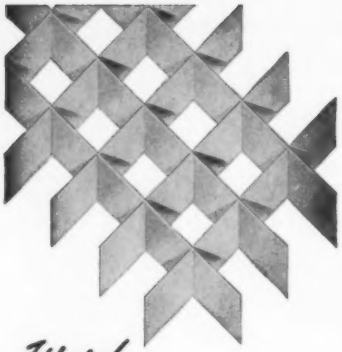

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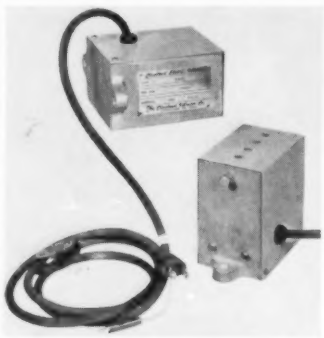
Choose equipment to suit the job. Write for recommendations, without obligation. Tell us the material, weight, container, and production requirements.

B.F. GUMP CO.
1346 S. Cicero Ave., Chicago 50, Ill.

turning a bolt. The manufacturer states that this will vary intensity of vibration at a frequency of 3600/min. The cast aluminum body of the MC-2

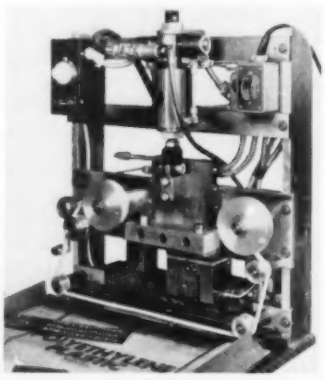


attaches with two cast feet, eliminating need for a mounting base. A sheet steel cover protects the vibrator mechanisms. It is ventilated and screened to keep out dust and dirt.

Circle code number on card or write: Cleveland Vibrator Co., Dept. PE, 2828 Clinton Ave., Cleveland 13, Ohio.

25—Bag Imprinter

To apply clear, indelible imprints on polyethylene bags, this new hot transfer leaf printer is a solenoid-controlled, air-operated unit. It uses heated metal type and a hot printing head to transfer the thermoplastic die

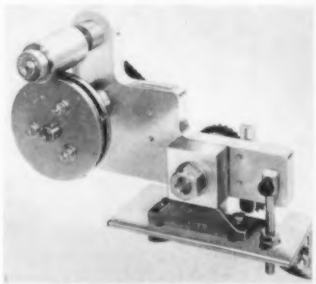


imprint from a roll of tape to the bag. The automatic leaf feed and the heat and dwell control are adjustable. Once it gets into the throat of the machine, the bag is automatically positioned by the printer which imprints a code number, product identification, or other information.

Circle code number on card or write: Industrial Marking Equipment Co., Inc., Dept. PE, 655 Berriman St., Brooklyn 8, N.Y.

26—Rope-Backed Tape

A new rope backed adhesive tape, C-633, is now available for low-temperature packaging, such as a sealing wrap for frozen foods. This tape has a thickness of 0.007 in. and an adhesion to steel of 30 oz. per inch width. Tensile strength is 50



lb./inch width and adhesion to backing is 25 oz./inch width. The tape is white.

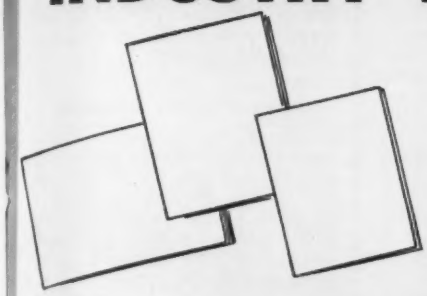
Circle code number on card or write: Arno Adhesive Tapes, Inc., Dept. PE, Michigan City, Ind.

27—Carton Marking Unit

The Indentacoda is a new attachment for an automatic cartoning machine. It makes a blind indentation of code-dates or other legends on folding carton flaps as part of the cartoning operation. The unit is made in two styles, for indenting from below or above. Indented legends can consist of up to 18 characters on a single line, depending on carton flap length. There is a choice of 1/16-, ⅛-, 3/16-, or ¼-in. type sizes. The Indentacoda gets its power from the cartoner to which it is attached. It is a synchronized unit with internal serpentine drive.

Circle code number on card or write: Adolph Gottscho, Inc., Dept. PE, Hillside 5, N.J. (End)

INDUSTRY LITERATURE available free



A SERVICE TO READERS: To get free copies of this literature follow instructions on Reader Service Cards inside front cover or write direct to manufacturer.

101—Label Printer

A bulletin describes label printing machinery for shipping, product identification, production, etc. A numbering device for printing additional information on labels for coding, etc., is also described. For this bulletin write: Weber Marking Systems, Inc., Dept. PE, 215 E. Prospect Ave., Mount Prospect, Ill., *or circle number on card.*

102—Glue Gun Combinations

Over 700 standard glue gun combinations for industrial adhesive application are covered in a new catalog. Manual and machine-mount units, two series of high-speed beading guns, and special glue guns are described. For the catalog write: John P. Fox Co., Inc., Dept. PE, 1107 S. Mountain Ave., Monrovia, Calif., *or circle number on card.*

103—Weighing Machinery

A brochure on automatic Elec-Tri-Pak weighing machinery illustrates weighing and packaging equipment designed for specific companies and products by Triangle. For a copy of the brochure write: Triangle Package Machinery Co., Dept. PE, 6655 W. Diversey Ave., Chicago 35, Ill. *or circle number on card.*

104—One-Way Bottles

A 20-page brochure gives facts and figures on no-deposit no-return bottles. Called "The Convenience Package of the Future is Here," the booklet explains the convenience package market, the different types of one-way bottles, equipment requirements and changeover costs for bottlers to convert from returnable to non-returnables, and explores a typical bottling plant. Copies are available from: Armstrong Cork Co., Packaging Materials Div., Dept. PE, Lancaster, Pa., *or circle number on card.*

105—Multiple Packeter

A pamphlet gives information on the BFM multiple packeter, which handles free-flowing, semi-viscous and viscous liquids and/or powders and granular products. The unit uses film, foil, or paper laminates at speeds to 350/min. For this pamphlet write: Brown Filling Machine Co., Inc., Subsidiary of Sundstrand Corp., Dept. PE, Ann Arbor, Mich. *or circle number on card.*

106—Ply Board Tester

A data sheet illustrates and describes a ply board tester. This testing machine was created to meet the need for additional physical testing of laminated products, gummed tape, and other packaging materials requiring high strength, by attaching a numerical value to internal bonding strength of paper and paperboard. For a copy write: Testing Machines, Inc., Dept. PE, 72 Jericho Turnpike, Mineola, N.Y. *or circle number on card.*

107—Shipping Container

A brochure is available on the Meadomatic corrugated shipping container. Of one-piece design, this container has three thicknesses of corrugated board on the bottom, two on the sides and top, and features a pouring spout with locking top flaps. For a copy write: Mead Containers, Div. of the Mead Corp., Dept. PE, Cincinnati, 12, Ohio, *or circle number on card.*

108—Interior Packaging

A loose leaf booklet describes the products, design and testing facilities offered by Vanant. General information about products and services, and summary, cost analysis and other forms are included. For this booklet write: Vanant Co., Inc., Dept. PE, Milwaukee, Wisc. *or circle number on card.*

109—Plastic Films

A 14-page booklet contains complete specifications for this firm's standard films, including general, bread wrap, overwrap, and high-impact films. The booklet also contains information on packaging and marking specifications, schematic drawings that illustrate roll put-up, charts and formulas for calculating yield, and standards for all its films. For this information write: Chippewa Plastics Co., Div., of Rexall Drug & Chemical Co., Dept. PE, 1701 First Ave., Chippewa Falls, Wis., or *circle number on card.*

110—Heat Sealer

An illustrated brochure describes three models of the Rotor-Sealer. Used in heat sealing thermoplastic materials, the band-type sealer features forced water cooling. For more information write: Ralph Chaffee & Co., Dept. PE, 2358-60 Market St., San Francisco 14, Calif., or *circle number on card.*

111—Hot Melt Adhesives

A series of bulletins give data on the seven most recently developed formulations of Thermogrip, a hot melt adhesive in cord-like form. Materials which can be bonded with each of the formulations are also listed. For a copy write: Thermogrip, United Shoe Machinery Corp., B. B. Chemical Co. Div., Dept. PE, 784 Memorial Dr., Cambridge 39, Mass., *or circle number on card.*

112—Air Power Tools

A 20-page catalog, No. 11, describes Paslode's air power staplers, stapling pliers, hammers, and tackers. Models and applications are illustrated. For a copy write: Paslode Co., Div. of Signode Steel Strapping Co., Dept. PE, 5860 Northwest Hwy., Chicago 31, Ill. *or circle number on card.*

(Turn page)

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with prompt, intact delivery of your product...and prompt, intact delivery starts with securely "laminated" closures!

The new BETTER PACK 555 ELECTRIC tape dispenser produces the strongest, fastest carton closures in America! And at a price well within the reach of the smaller shipper.

For demonstration-trial in your plant, write name, company and address on margin and send to:

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Shelton, Conn.

☐ Also send valuable new "20 Ideas" Booklet

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113—Packaging Abstracts

PACKAGE ENGINEERING magazine offers a data sheet describing *Packaging Abstracts*, a monthly publication which abstracts articles about packaging from some 200 magazines from all over the world. Each issue has 18 sections of topics pertaining to raw materials, adhesives, coating treatments, shipping containers, etc. For more information write: Package Engineering, Dept. PE, 185 N. Wabash Ave., Chicago 1, Ill. or *circle number on card.*

114—Coil Wrap Papers

Literature describes coil wrap papers featuring new longitudinal pleating, for automatic machine wrapping of steel strapping; steel copper and alloy wires, aluminum wire and extrusions, plastic and rubber hose and other products. Samples of the papers are included. For this literature write: Thilmany Pulp and Paper Co., Dept. PE, Kaukauna, Wisc. *or circle number on card.*

115—Pressure-Sensitive Tape

A folder describing the variety of applications for pressure-sensitive paper tapes and their physical properties is available. The folder, with 25 photographs, shows how Scotch brand paper tapes are used for sealing, holding, identifying, and other packaging projects. Also described are machines designed to dispense and apply this tape. For a copy of the folder write: Minnesota Mining & Mfg. Co., Dept. PE, 900 Bush Ave., St. Paul 6, Minn., or *circle number on card.*

116—Tube Wind Adhesive

Literature is available on Swift's tube winding adhesive, Amset glue and Palletite adhesive for shipping and storage. Illustrations and uses are given. For this literature write: Swift & Co., Adhesive Products Dept., Dept. PE, Chicago 9, Ill. *or circle number on card.*

117—Polyethylene Bottles

A brochure on blow molding polyethylene explains how processing and material-selection factors in extrusion/blow-molding influence wall thickness, crystallinity, permeability, and minimum cooling time of polyethylene bottles. For a copy write: Union Carbide Plastics Co., Div. of Union Carbide Corp., Dept. PE, 270 Park Ave., New York 17, N.Y. *or circle number on card.*

118—Gummed Tape

A pamphlet shows construction features of various types of reinforced gummed tape. Specifications and samples are included. For this pamphlet write: Central Paper Co.,

NEW HIGH SPEED LIQUID FILLER
for
PLASTIC, GLASS
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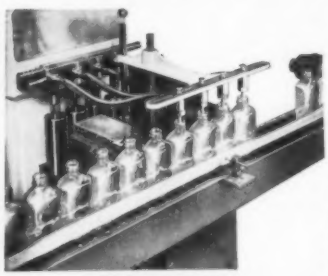

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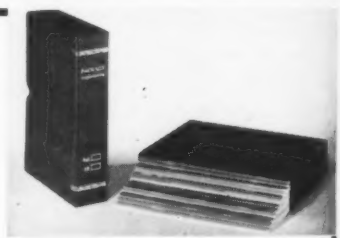

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120—Tablet Packager

A catalog sheet describing the Model UPH unit packager for tablets is available. Designed for round, rectangular, or square pocket packages, the machine features multiple cut-off for strip packaging, adjustable speed, and a slitter-perforator between rows. The catalog sheet gives general specifications. For a copy write: Wrap-Ade Machine Co., Inc., Dept. PE, 188 Sargeant Ave., Clifton, N.J., or *circle number on card.*

121—Filling, Sealing Units

A 6-page illustrated brochure describes Mercury's line of filling and sealing machines which handle flexible packaging materials. Automatic units include a form-fill-seal machine, a strip packager, drum liner, pouch maker-sealer, saddle label sealer, as well as foot-operated and hand-operated sealing machines. For further information write: Mercury Heat Sealing Equipment Co., Dept. PE, 2601 N. Howard St., Philadelphia 33, Pa., or *circle number on card.*

122—Polyethylene Coatings

A technical data bulletin, "Low Molecular Weight Polyethylene-Wax Coatings For Corrugated Board," describes characteristics of polyethylene-blended coatings, enumerating the results of tests for hardness, blocking point, chemical resistance, etc. For further information write: Semet-Solvay Petrochemical Div., Allied Chemical Corp., Dept. PE, 40 Rector St., New York 6, N.Y., or *circle number on card.*

123—Water-Soluble Film

Three data sheets describe characteristics, applications, and machinability of polyvinyl alcohol film which is water soluble. For use with water-additive products, this material is specifically designed for form-and-fill packaging machines and a list of such equipment is provided. For further information write: Reynolds Metals Co., Dept.

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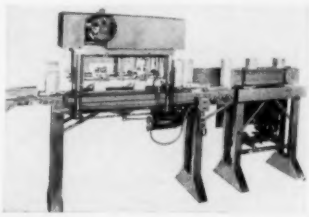

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124—Temperature Controllers

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125—Polyethylene Coating

A Tenite polyethylene formulation recently developed for the extrusion-coating of paper is described in Materials Bulletin No. 2. Data on equipment, properties of coating, and coating conditions are presented. For this bulletin write: Eastman Chemical Products, Inc., Plastics Div., Dept. PE, 260 Madison Ave., New York 16, N.Y., or *circle number on card.*

126—Stapling Equipment

Three case histories of installations using International's dual stapler equipment describe the product packaged, the problem, method previously used for closing filled cartons, and the results. For this material write: International Staple & Machine Co., Dept. PE, P.O. Box 270, Herrin, Ill., or *circle number on card.*

127—Plastic Vials

Descriptive literature is available on a line of cylindrical plastic vials complete with plastic closures. Called Handy-Paks, they are designed for packaging small parts in limited quantities or for sampling. There are ten different sizes ranging from ⅜ to 3 in. For additional information write: Celluplastic Corp., Dept. PE, Federal Trust Bldg., 24 Commerce St., Newark 2, N.J., or *circle number on card.*

128—Shock Recorders

A brochure provides details on shock-recording instruments and includes descriptions of several types designed to fulfill the needs of special, but widespread, shock measurement problems. For this brochure write: The Impact-O-Graph Corp., Dept. PE, 1900 Euclid Ave., Cleveland 15, Ohio, or *circle number on card.*

129—Polystyrene Resins

A 4-page product data guide on three lines of Elrex polystyrene resins gives significant property ranges in tabular form and presents an explanation of the Elrex nomenclature system. For a copy write: Rexall Chemical Co., Dept. PE, P.O. Box 37, Paramus, N.J., or *circle number on card.*

130—Protective Packaging

Characteristics and applications of protective packaging with fluted paperboard trays are stated in a brochure. A variety of styles and choices of cover flaps are outlined. For this brochure write: Rondo of America, Inc., Dept. PE, 100P Sanford St., Hamden 14, Conn., or *circle number on card.*

131—Poultry Packaging

A 4-page folder discusses the Poultry Products Inspection Act and presents comments concerning the effect of this Act on paper and poultry. The wrapping, handling and identification of poultry products are reviewed. For further information write: Riegel Paper Corp., Dept. PE, 260 Madison Ave., New York 16, N.Y., or *circle number on card.*

132—Automatic Packager

Available is an illustrated pamphlet on the Rotomatic packer, which automatically packages free-flowing materials in open-mouth multiwall bags. No outside source of power is required because it operates by gravity, and the material being packaged activates all mechanical and weighing components. It will handle standard multiwalls from 50 to 100 lb. To obtain this pamphlet write: Raymond Bag Corp., Dept. PE, Middletown, Ohio, or *circle number on card.*

133—Inhibitor Papers

A 75-page catalog on inhibitor papers for prevention of corrosion and tarnish of ferrous and non-ferrous metals includes charts, case histories, glossary of terms, and a set of samples. For more information write: Orchard Paper Co., Dept. PE, 3914 Union Blvd., St. Louis 15, Mo., or *circle number on card.*

134—Automatic Cartoning

Portable automatic cartoning equipment is described in an illustrated brochure. Details on adaptations and accessories, as well as special combinations, are explained. For more information write: Bivans Corp., Dept. PE, 2431 Dallas St., Los Angeles 31, Calif., or *circle number on card.*

135—Bottle Cleaners

A folder presents a flow diagram, specifications, and descriptions of the Model 10 Hydro-Jet bottle cleaners. Various sizes are illustrated. Units handle 16-oz. bottles or smaller. For more information write: Barry-Wehmiller Machinery Co., Dept. PE, 4660 W. Florissant Ave., St. Louis 15, Mo., or *circle number on card.* *(End)*

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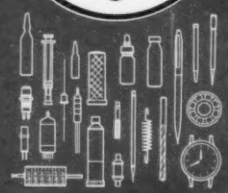

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Job shop packaging

(Continued from page 65)

Rating Your Work

How do you know how good a job you are doing? How do you measure the performance of your crews and department? Management uses various yardsticks; problems in connection with them involve you in over- versus calculated under-packaging. Just how much damage can your company accept?

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What we think

Packaging groups must stress user viewpoint

Far too few package users take part in the Packaging Institute, Society of Packaging and Handling Engineers, and the packaging activities of American Management Association. More users should get into these groups and demand that the programs meet their needs.

A good many users think there is too much supplier influence in these groups. Perhaps so, but in fairness to suppliers we must add that many of them are on programs simply because program chairmen cannot get users. Further, many people working for supplier companies are more professional and better educated than a lot of users. On top of this the supplier people are always willing to lend a hand and often bring valuable information users need. Unfortunately, a certain amount of technically-coated hucksterism gets into the clubhouse.

When some far-sighted package users in Chicago recently were writing the rules for a local chapter of the Packaging Institute (the first such chapter) there was quite a commotion when the users said they planned to limit supplier participation. We hope these users stick to their guns and insist on such limits.

Many suppliers think this is second-class treatment and a slur on their professionalism. Not so. On the other hand, some people prominent in packaging assert there is no longer a user-versus-supplier question. They say we are trying to flog a dead horse in even noticing the issue.

Just the same, we must cut through the confusion and air the problem. There are two very distinct points to note: first, there is the professionalism of the individual; second, there is the job function the individual is doing. In (1) the ground rules should measure the individual on his own professional worth. However, in (2) we should recognize that the job or company function is a thing apart from the individual.

The growth of packaging professionalism needs a broad base. The club's doors should swing wide open to the individual on the merits of what he offers regardless of where he works. We must not banish anyone to an organizational Siberia simply because he represents a supplier rather than a user.

Even so the users must be free to limit suppliers in user-oriented groups and to have closed meetings. Suppliers must recognize that users do this on a basis of job function and not on personal qualification or status as suppliers.

The suppliers shouldn't be so sensitive on this point. Rather they should recognize this as a user's stride toward professionalism and see that only their most capable representatives go to these groups. Further, if they want to build strong packaging groups, they should carry the word to users they call on up and down the line, urging them to get into, say, PI or SPHE.

Users must make their groups meet their needs

But in the last analysis it is up to the users to assert themselves. The other day we heard a dedicated, articulate seadog, Rear Adm. John S. McCain Jr., head of the amphibious forces of the Navy's Atlantic Fleet, tell the problems the Navy faces in meeting a four-ocean commitment and in patrolling pressure spots all over the world. Interestingly, the pushes of Communist aggression are held in check by the prospect of peninsular warfare and subject to flank attack by sea power, something, he reminded us, in which the United States and Western forces are most experienced and most powerful.

While he recognized the need of balanced land, sea, and air power and while he stressed the importance of open seas to the West, he admitted that in the end you win wars only by taking possession of territory: "A man with a gun plants his feet on the ground and says 'this is mine.'"

The only parallel here is that in expanding areas of industrial technology just as in world affairs we do not progress by sitting on the fence. Rather, groups striving to accomplish something lasting and worthwhile must assert themselves. So it is with packaging. The users must reach for the dominant roles in the packaging groups and say "These are ours."

Bruce Hoffman

Editor

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